A

MANUAL

ON THE

CULTURE OF THE GRAPE,

WITH A

DISSERTATION ON THE GROWTH

AND

MANAGEMENT OF FRUIT TREES,

ADAPTED TO THE

NORTHERN STATES.

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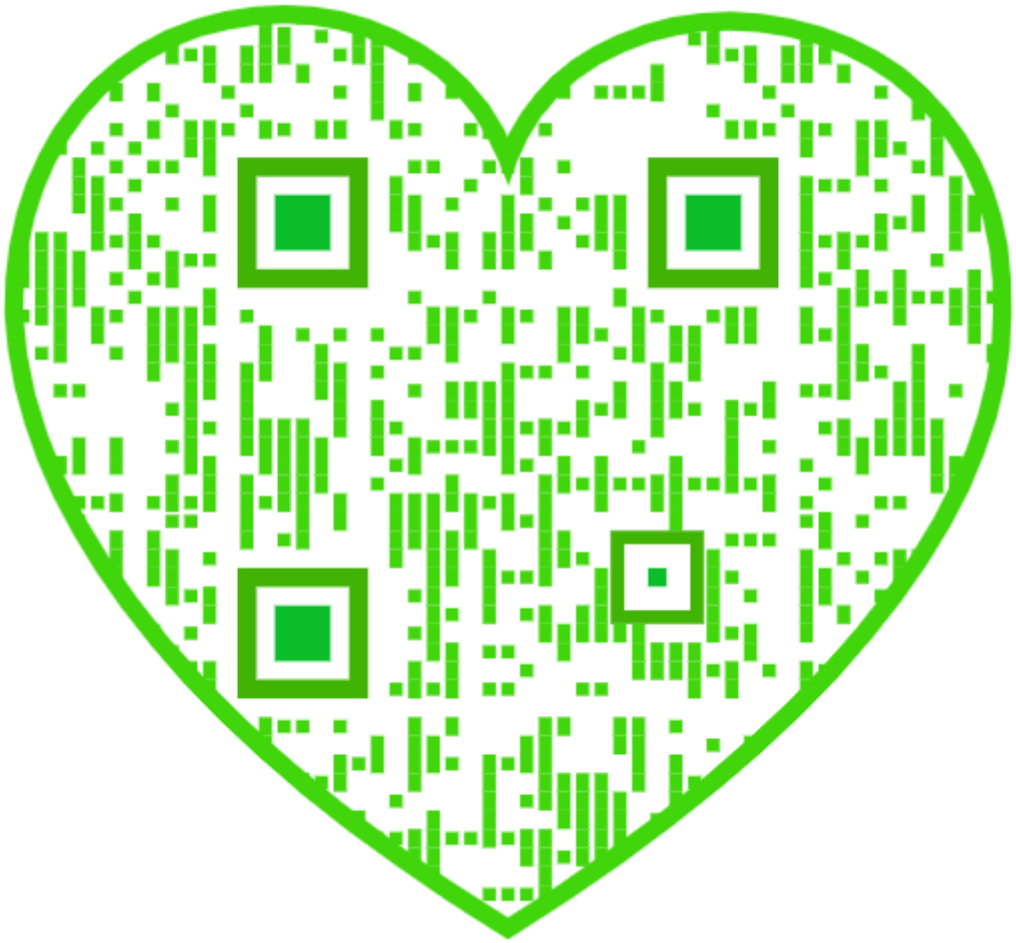

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PREFACE.

In introducing the following little Manual, it will be proper to say that it has been penned in haste in consequence of many urgent solicitations that have been made for some practical hints on the culture of the Grape. The remarks given relative to the natural causes of disease, and the best manner of counteracting them in an infant state, have been added with a view to throw as much light on the subject as possible. The remarks on the probable improvement and naturalization of the seed of the foreign Grape, have been suggested with a hope that the culture of the Grape, like all other fruit, will be much improved and soon become a principle ornament in domestic gardening.

Some practical hints are also given on the management of the Vinery, which is now engaging the attention of many persons, therefore the subject has been as much as possible adapted to the purpose of general culture.

The concluding *remarks* on the nature and qualities of fruit trees are given as practical hints relative to the many causes by which fruit is liable to be deterred from a free growth and good quality.

With these few remarks, the author respectfully presents this little Manual to the public, in hopes that it may answer the intended purposes of being really useful to those who are desirous of cultivating their own Grapes and choice fruits.

E. SAYERS.

CHAPTER I.

ARTICLE I.

Cursory Remarks on the Culture of the Grape-Vine.

After the many able works that have been written on the Culture of the *Grape-Vine*, little remains to be said in this place, as original matter on the subject: but, as this work may come into the hands of persons unacquainted with its cultivation and are desirous of making some enquiry into a practical mode of management that has been followed, I herein subjoin some facts that have come under my practical observation.

In my remarks I shall principally confine the subject to the *Ill effects of bad management*, which perhaps is the best manner to throw light on a correct method of culture, and illustrate the many ill effects arising from the well being of the Grape-Vine.

The Grape-Vine is subject to many casual injuries, especially in summer, owing chiefly to the very porous nature of the wood and leaves, which render it susceptible to many diseases, as the Mildew, Red Spider, &c. by which many crops of fruit are totally lost. Whatever food, impurity of air, or epidemical disease is pre-

sent to the Grape-Vine, it is readily imbibed by it, and the vine either flourishes or sickens, according to the presence of such food or disease. The roots also extract any injurious matter from the soil in a liquid state, which is quickly conveyed to the extremity of the branches and most minute parts: hence the Grape-Vine has often been resorted to by Phytologists to investigate the circulation of the sap, which has given rise to many useful facts being proved, by charging the sap-vessels of the wood with colored fluids which have been traced to the leaves, &c.

The porous nature of the vine may be easily discovered by cutting a transverse section of the summer's wood, and holding it to the light, when the vessels will be clearly seen sufficient to prove what has here been said on the subject.

The mismanagement of the Grape-Vine may be frequently traced to the neglect of summer pruning, particularly in City Gardens, where it generally finds a place; for when a Grape-Vine is allowed to grow without any restraint or summer pruning, it seldom brings its fruit to any perfection, or grows in a healthy state. This defect is owing to the wood growing too thickly together, the consequence is, that it is of a soft sappy nature, and not proper to bear fruit or withstand the winters severity. This fact may be seen by any intelligent observer.

Such Grape-Vines, as have not been summer pruned

will be found to be very thick of wood, so much so that the *sun* and *air* have been partly excluded from the under branches which are consequently weak, and the fruit small, and of an inferior quality, with many of the *berries* rotting from the bunches, owing to their being too much shaded. If the vines are allowed to remain in this state, the fruit will not ripen, and therefore it will not obtain its proper quality, consequently it will be unpleasant to the taste and unwholesome to the stomach.

ARTICLE II.

Soil and Location.

In describing the culture of the Grape, the nature of the soil best adapted to it will be the first consideration, which in all cases will require to be highly manured, which is fully exemplified by common observation, as the Grape-Vine generally thrives and produces well in City gardens, where a quantity of manure is always present from soap-suds, ashes, and other nutriments.

The best soil for the Grape-Vine, is that of a rich loamy nature, with a portion of sand; but, almost any natural soil will perfect native Grapes, if richly manured, on condition that the sub-soil is dry; wet bottoms, are in all cases injurious to the growth of the Grape.

Location.—The Location best adapted to the vine is a sheltered situation with a good exposure to the south east quarter, and if a little elevated the better. Although I have never been convinced that a high location is of any benefit to the Grape.

The Isabella, and most native Grapes, I have noticed to thrive and bear the best in Towns and Cities on Trellises situated on the South or East aspect, and I have also noticed that the elevated locations of such Cities have not been so congenial to them as flat bottoms: this may be accounted for by the situation being less subject to sudden changes of the influence of the *sun* and *air*, and other changes on high locations.

ARTICLE III.

Propagation of the Grape-Vine.

There are many methods by which the Grape-Vine is propagated or increased as by the single eye, the cutting, the layer, and by seed. The most simple and successful, is by cuttings off the young wood, three or four eyes or joints long, which are inserted about half way in the ground, in rows 18 inches apart, and 6 inches apart in the rows. The manner of performing the work is to well prepare the ground by digging, &c. then set a garden line and insert your cuttings regularly by the proper

distance, closing the ground well about them with the foot.

The management of the cuttings of the first year is simply to keep the ground clean and well cultivated.

If a shady location is chosen for the cuttings, they will root the better, many being lost in this climate, by drought. The best time of setting them is in the spring, when the frost has disappeared.

Second Year's Culture.—If the young plants are to remain the second year in the Nursery, (which is by far the best method,) they should be pruned about the beginning of March, by cutting off their shoots to two or three eyes, when the ground is open, if a quantity of good rotten manure be thrown between the rows, and neatly dug in, the plants will be much benefitted. When the young shoots begin to grow, they are to be finger-pruned by breaking off all the shoots to three or four, one of the strongest of these will require to be trained to a stake, and the others shortened when they are from one foot to eighteen inches long.

The ground between the vines will require keeping clean, and the plants often looked over, during the summer, and divested of their dead and sickly leaves, and any insects or other nuisance that may be hurtful to their health, and every means of good culture should be applied to grow them strong and vigorous.

CHAPTER II.

ARTICLE I.

Preparing the Ground and Planting.

In all cases where the Grape is to be planted the ground should be well prepared, by putting on to it a quantity of rotten manure, and well ploughing or digging it to a proper depth.

Every precaution should be taken to take up the young plants without cutting the roots too near the stem. The roots should be traced and left at least two or three feet from the stem. When the plants are thus carefully taken out of the ground, they should be as soon as possible replanted in a hole sufficiently large to admit the roots in their natural position, which should be laid in a regular manner in the hole, about the same depth in the ground as in the nursery. Having planted the vines carefully, nothing more is required but to remind the planter, that good culture is always to be attended to, by digging, keeping the ground clean, and good management.

CHAPTER III.

ARTICLE I.

Summer Pruning of the Grape.

The proper method of summer pruning the Grape-Vine, is simply to regulate the young wood in such a manner that the *sun* and *air* has free access to every part of the vine; every part of the vine that is not so exposed, cannot obtain its proper quality, as the leaves of vines are synonymous to the lungs of animals, and imbibe the air in a similar manner, therefore the quality is more or less replete in proportion to its free exposure, and the young wood is the same. This may be clearly seen by examining a vine thickly covered with wood, the extreme branches of which are always healthy, because they have the benefit of the *sun* and *air* and every thing congenial to them. But, those which are thick and shaded are very weak, the leaves thin, turn yellow and decay; the wood is soft, green, and sappy, and perishes in the winter, and is therefore useless: the bunches of Grapes that are under the branches of the vine have small berries, and many of them drop off after rain and moist-

weather, and those that remain are not well colored nor well flavoured; this is the effects of the absence of *sun* and *air*.

The regular process of summer pruning the Grape-Vine is to commence early in the spring, as soon as the young shoots are grown three or four inches in length. The first thing to be done is to take off all the weakly shoots where two or three are growing together in clusters, leave but one, the most healthy and vigorous.—(*This is termed Finger Pruning.*) The next operation is the *stopping the wood*, which is performed by nipping it off between the finger and thumb two joints above the bunches of Grapes, which are at this time to be seen in all parts of the vine; but care must be taken to leave strong healthy shoots in a regular manner in every part of the vine, for young bearing wood for the next year without stopping. These shoots should be left about eighteen inches apart in every part of the vine. In this operation the shoots should be regulated at their proper distances and neatly tied with bass matting or strings, and the young wood and bunches of fruit be as much as possible so placed as to have free access to *sun* and *air*.

When the young wood is properly regulated at equal distances, that every part enjoys the sun and air, the after management is to take away all dead decayed leaves, and keep the vine in every respect in a clean and healthy state. The lateral shoots should also be

broken or nipped off at different times that the vine may not be weakened by them. Lateral shoots are those which grow from the eyes of the young wood, and are of no use to the vine either at this time of growth or the next year's fruiting wood, but draw a portion of substance from it in proportion to their number; hence the utility of removing such shoots. In taking off laterals care must be taken to nip them off one eye from the main or longitudinal shoots: this is one grand point in summer pruning, which is often improperly done by nipping them too close; the consequence is, that the eye bursts and grows at an improper season, which causes a barrenness the next year, owing to the neglect of leaving a proper bud, to carry off the superfluous sap, which is effected by leaving an eye on the end of the lateral, from which the current of sap is kept in motion; the laterals must be often taken off and the bunches thinned when the fruit is as large as small peas.

The method of thinning is to leave the bunches as regular as possible in every part. One bunch should be left on a shoot of the present year's wood, where the branches are weak, and two on those of stronger growth; and no more than two in any place.

The benefit arising from thinning the bunches is this; the Grapes are better flavored and the fruit finer; the wood is also better ripened, and more vigorous, and every way better for fruiting the following season.

Winter Pruning.—Pruning the Grape-Vine has been

held in such consideration in Europe, that different systems have been resorted to, and applied as a correct theory of art. They are the *Thomeroy, Spurring and the Caning.*

The *Thomeroy* is performed by forming the vine in such a manner that the old wood always remains forming the frame, and all the young wood is cut into two or three eyes for fruiting.

The *Spurring* is performed by cutting the vine so that spurs of the young wood are left from four to six eyes regularly over the vine for fruiting; and in different parts the wood is cut to two eyes for throwing out young wood.

The *Caning* system is performed by managing the vine so that the fruit is produced from canes of young wood, four or six feet long, which are cut off every alternate year; and other shoots are regularly trained to take their places. Experience has taught me, that a *medium* plan between the spurring and caning system is the best.

The best time for pruning the Grape-Vine is the middle of February, when the severity of the winter has acted on it so as to injure the soft wood, which is incapable of producing fruit.

The first consideration in pruning is to have a sharp knife, in order that the wounds where amputations are made, may be clean and smooth. All the soft and small wood must be taken out, and then a portion of the old

in such a manner, that the vine is regularly supplied in every part with young wood.

The principle object to be kept in view is to leave proper wood for fruiting, which is that of the last year's growth: the old wood serves as a main leader or frame of the vine. In selecting the fruiting wood, care must be taken to leave that which is well ripened; the eyes should be plump and well formed, and so that every part of the vine is well supplied, about two feet apart, with young fruiting wood, the shortening of which must be according to their quality, to about ten or fifteen eyes of young wood, well hardened, which will be discovered by cutting it; if the part intended to be left is not hard and well ripened, it should be cut lower until you are satisfied.

Having thus selected your fruiting wood, the next consideration is to leave eyes for the next year's wood, which is done by cutting the shoots of last year's growth to two or three eyes, from which a supply of young wood will be obtained for summer training, as before directed, for the next year's fruiting. When the pruning is completed, the wood must be neatly tied with bass mat or other string to the trellis, and if any loose bark or rubbish be about it, it should be cleaned away.

CHAPTER IV.

NATURALIZING THE FOREIGN GRAPE.

ARTICLE I.

Growing the Grape from Seed.

It is little to be doubted that the native Grape, as well as other fruits indigenous to this country, will be at no very distant day, much improved by raising new varieties from seed, especially if the native varieties are crossed by the foreign, as, the native Isabella with the foreign Black Hamburgh, and the Scupernong with the White Sweetwater, Chassalias, &c. of Europe.

From this crossing it is very probable that the flavor of the native varieties will be much improved and at the same time they, being natural to the climate, will retain all the hardy qualities requisite to the country. It is much to be hoped that every encouragement will be given to such pe sons as enter into raising seedling Grapes of the country: such persons should be patronized by premiums from the different Horticultural Societies, by which it would stimulate many to embark into a subject that would be really useful to all classes of people. When it is recollected that the Crab-apple is the primitive of all the fine varieties of apples now

extant, which have been worked up to a fine quality mostly by culture and seedlings, it is as reasonable to suppose that the same improvement is to be made on the Grape, in a very few years. *A trial will most probably justify these remarks if properly and perseveringly followed.*

In trying the experiment, I would recommend that the Isabella Grape, when in flower, be impregnated with the foreign Grape, as the Black Hamburgh; or, perhaps, the Burgundy would be more proper. From the seed of these Grapes raise young vines by sowing it in pots of rich soil, early in the spring, and plunge the pots in a moderate hot-bed the beginning of March. When the young plants are well rooted, plant them in rows, eighteen inches apart, and train and manage them as directed, page 5. When the seedlings are in a fruiting state, I recommend that the best varieties are selected for seed, and the same experiment be followed through three or four generations, until the desired object be obtained of producing varieties that are well flavored and ameliorated to the climate.

ARTICLE II.

Naturalizing the Grape by Cuttings and Grafting.

While I am on the subject of Naturalizing the Foreign Grape, it may not be improper to throw some

hints on the probability of its being much facilitated by a continual raising of young vines, yearly, from cuttings; and grafting on the native varieties.

The experiment I would recommend to be tried is, by first propagating the Black Hamburgh or White Sweetwater, from cuttings taken from a healthy vine, as near as possible to the root. The cuttings I would recommend to be of the last year's wood, and that which is hard and short-jointed; put the cuttings into a rich soil, and open exposed situation, where they may have the free access of *sun* and *air*, and the changes of the season; the plants should be distinctly by themselves so that nothing may retard their strong and healthy growth. Every facility should be given to encourage their growth, and any insect or disease that attacks them, if possible, be expelled. One shoot only should be allowed to grow from the cutting, trained to a stick, and not be allowed to lay on the ground, as it will be liable to be infected with Mildew or other disease.

From the young wood of the vine, next to the old wood, the following spring, take another cutting from each plant of three or four eyes, which strike and manage as before recommended, throwing away the mother plant, which will be useless in this process.

The same process may be continued for ten or fifteen years, when it is very probable the vines from the plants of that generation will be much naturalized and less subject to the disease natural to the climate.

Another process may be tried by grafting the foreign Grape upon the native varieties taken from woods, by cleft-grafting, which should be done close to the ground. The young shoots from the graft may be managed as directed for the cuttings; and a new plant grafted yearly from the part next to the stock, on a fresh plant of the native vine.

In throwing out the above hints, I cannot pretend that a certainty of gaining the desired purpose of naturalizing the foreign Grape can be vouched from any practical authority or experiment that has been made under my knowledge; but, from an actual experience of many plants that have become hardened and naturalized by nearly the same treatment, I see no reason why the Grape may not be brought to stand the climate in the like manner.

CHAPTER V.

ARTICLE I.

Disease of the Grape.

From general observation and many experiments I have been fully convinced that the native Grapes, here recommended, when well cultivated, are seldom injured either by disease or insects, that most kinds of eatable fruits are subject to; and that most kinds of foreign Grapes, on the contrary, are affected by many diseases and insects, in a manner that will ever discourage their culture in the vineyard or open exposure, unless they can be naturalized to the climate. On a deliberate examination of the Grape-Vine, I think the above remarks may be fully authenticated, and it will be found that the native Grape-Vine is naturally of a more hardy and compact texture in its wood, leaves, berries, and indeed, in every part, than the foreign varieties: hence Mildew and insects are not so likely to infect the native as the foreign Grape. I am firmly of an opinion that the casualties that happen to the Grape, generally are more owing to the feeble nature of the vine, than any blights or insects that attack it at any period of its

growth, although at the same time I am aware that the most healthy vines are often affected, by disease and insects, in a greater or less degree. By comparing the leaves of the native and foreign Grape, it will be seen that the former is of a much firmer and more compact nature than the latter, and perhaps, as nature is ever perfect in her works, such leaves do not either perspire or respire so freely as those of the foreign Grape, that are of a softer and more succulent nature; and hence we may infer that the sudden changes do not act so injuriously on the native as on the foreign Grape. The wood of the foreign Grape is rarely well ripened in the fall, and has generally more pith than the native; therefore, supposing it was not attacked by disease in the summer, the winter's severity and sudden changes would naturally act very severely on it, particularly on a southern aspect, where the sap is liable to be often frozen and thawed during the winter and early part of spring, which must certainly burst some of the sap-vessels and cause much injury to it.

The most injurions disease to the Grape is the Mildew, which always affects the weak and tender parts of the vine, as, the young leaves and tender branches, and from those to the bunches of Grapes, which seldom recover when once diseased. I have never been fully satisfied that any cure can be made of the Mildew when vines are much diseased; I believe that when once a vine is affected in any part, the disease is soon

conveyed to every part of it through the sap-vessels, and the constitution of the vine is so materially injured that it takes some time to recover it to its pristine health and quality.

Whether the Mildew is an *animalcule* or *fungous*, I will not pretend to determine; but I am of an opinion that it is at first generated by a stagnation taking place in the leaf, in such a manner that the pores of it are stopped; the consequence is, that an impure matter is present which is imbibed by the leaf, which contaminates the sap of the vine, and is thence communicated to every part of it in a shorter or longer period. I shall not pretend to prescribe any remedy as a cure; but remind my reader that good culture may, in a great measure, in this and every other case of disease, be the best *remedy*; for certain it is, that all kinds of vegetables are most severely injured by disease when weakly, and the more healthy they are, the less liable to be affected.

ARTICLE II.

Select varieties of Native Grapes

The native varieties best adapted for arbors, and general culture that I am at present acquainted with, are the *Isabella* and *Catawba*, which are described as fol-

lows in "*Kenerick's Orchardist*," a work that should be in the hands of every fruit grower.

"*Isabella.*—This fine native Grape is extraordinary for the vigor of its growth, and wonderful productiveness. The bunches are of a large size; the berries are large and of an oval form; the color is a dark purple, approaching to black, and covered with bloom; the skin is thin, with but little pulp; the flesh is juicy, rich, sweet and vinous. By hanging the bunches in a room, it has been ascertained that they lose that very small portion of muskiness they possess. This Grape makes excellent wine, and requires no protection in this climate.

"*Catawba.*—This is an excellent Grape for wine; the bunches are of very handsome size and form, and shouldered; the berries are a deep purple, next the sun; the skin is thin, juicy, sweet, rich and vinous, with a very little of the native or musky taste. This vine is very vigorous and hardy, and is a great and certain bearer."

Winnie.—This Grape is much cultivated and esteemed in Albany, and is similar to the *Isabella*; it is said to have been found by a Mr. Winnie, of that place, from whom it derives its name, and is highly deserving culture as a native Grape of the first order.

CHAPTER I.

MANAGEMENT OF THE VINERY.

ARTICLE I.

Observations on its Utility.

When the many good qualities which the foreign Grape possesses is taken into consideration, it may be said to excel almost any fruit as yet known in the forcing department. Its long tested qualities as being replete (when well ripened) with a rich, highly-flavored luscious juice in connection with its handsome appearance, particularly recommend it to the desert, in which it has been held in high esteem in almost all countries. for many years.

The produce of the Grape, when well managed and the Mildew can be evaded, is always encouraging in the highest degree, as, in most cases, the crop fully compensates those who bestow hot-house culture on it. To these, may be added, the longevity of the vine and a succession of fruit for the table when in eating, and, lastly, a very handsome appearance in a bearing state.

ARTICLE II.

Planting and Preparing the Vinery.

The preparing and planting the Vinery should be carefully attended to, as the future produce will much depend on its being properly managed at first. The house may be of almost any construction; but that of a moderate size is the best. One of about thirty feet long and fourteen feet wide, in the clear, built in such a manner as to admit of glass three feet in front, and the back, which should be of brick, of a height to allow an elevation of 45 degrees, when the roof is put on, *which should be all glass.* In the inside of the house a pit may be built of brick, six feet wide and four feet deep. The pit may be in the centre of the house which will admit a walk, each side, of four feet wide, and the same may be allowed in the end. A pit of this kind may be turned to good advantage in the winter for preserving Lettuce, Celery, and other vegetables which require the frost only to be kept away from them. About the beginning of March the pit may be cleaned out and a quantity of hot manure put in to make a moderate hot-bed, which, when the heat begins to rise, may be earthed with good soil for the purpose of sowing on it Radish, Cabbage, Lettuce and such early Salads and plants as are wanted for family use. A part of the pit may also be used for forcing of Aspa-

ragus, tart Rhubarb or Pie-plant and any kind of perennial herbs, as Mint, Taragon and the like; indeed, a bed of the kind may be made generally useful. The culture and heat requisite for such plants will also be congenial to starting the vines in a strong, vigorous manner. A few green-house plants may be accommodated in the Vinery, placed on the curb of the pit and back of the house; but I cannot by any means recommend it to be entirely appropriated as a green-house to winter plants, which in the spring must be much injured by being shaded with the vines, and the heat and moisture requisite for the Grape being quite contrary to the health of the green-house plants. On the other hand, the foul effluvia that will arise from the soil and perspiration of the green-house plants will settle and condense on the leaves of the vines and bring on a disease; the young bunches of Grapes will decay and drop off, and in fact, to be candid, it is impossible for any person to do justice to anything so opposite in nature as green-house plants and the Grape-Vine, at an early season.

When Grapes are intended to be grown in hot-houses, every other thing accommodated should be considered as temporary, and the Grape should, in every way, be accommodated, as near as possible, to its nature, or little good can be expected.

Location.—I have most generally found the Vinery to do best, by being located on a rising situation, pro-

tected at the North and North-West quarter by a plantation of trees or buildings. It should be so situated as to face to the South or South-East quarter; but the latter I would recommend, as in that aspect it will receive the morning sun, so congenial to the Grape-Vine.

Preparing the border for planting.—The *border* for the Vinery may be prepared by digging out the soil, three feet deep, in front of the house, and from twelve to fifteen feet wide; or, as wide as the vines have to traverse under the roof, will perhaps, be a better criterion, as most plants, the vine particularly, are found to extend their roots in the earth as far in length or distance as they grow in height. If the bottom or sub-soil is *wet*, it will be better to dig out the soil a foot deeper than is requisite, and fill it up with old mortar rubbish, or anything that will drain off the water; as the Grape always thrives best on *dry* bottoms. When the border is thus prepared, it will require to be filled with Compost in the month of September.

Preparing the Compost.—The Compost, which I have mostly found to answer the best purpose for the Vinery is a mellow *loam*, well incorporated with one-third part of rotten manure, or, in order to have a border prepared in a superior manner, *the top sod of a rich, loamy pasture* may be taken off six inches deep, and thrown into a heap with one-third rotten manure; and if a portion of manure from a slaughter-house is added, it will answer a good purpose.

The compost may be thrown into the pit or border, where it may lay a month or two to get into a state of fermentation, when it should be turned and well mixed as a manure heap. This may be done two or three times in order to incorporate it well together. I would also recommend about 50 lbs. of sulphur to be mixed with the compost, the last time of turning, which will destroy many insects detrimental to the vine, and act as a stimulant to it.

Planting the Vines.—In planting the Vinery every precaution should be taken to procure select kinds of Grapes of respectable Nursery-men, who can be relied on as to correctness. I have often seen Grape-houses furnished with ordinary sorts of Grapes, owing to injudicious selections, which have been re-planted at a great expense, and the loss of two or three year's growth, which is considerable in such cases. The vines for planting should be at least two years old, and if raised from the eye the better. The best time for planting is early in the spring, about the latter end of March. The vines may be planted as directed under the head of Planting, page 6. One plant to each rafter may be planted outside the house, in front, in such a manner as it can be introduced into the house by a hole four inches in diameter, cut under the front cell directly under the rafter into which the vines are to be introduced into the inside of the house.

ARTICLE III.

First Year's Management.

The only thing requisite in training the vines the first year, is to train up one shoot under the rafter from each vine, in a straight manner, on a wire placed directly under it, about twelve inches from the glass. The lateral shoots should be trained as before directed in page 7.

Syringing the Vines.—The vines will require a gentle syringeing, with a patent syringe,* in the morning and fine evenings when the leaves can be dried after the operation; but it may always be omitted in moist weather, particularly late in the season. The syringeing may also be wholly omitted late in autumn, in order to ripen and harden the wood of the vines; and the house in every part should be kept as dry as possible. Particular care should be taken at *all times* to keep the house clean and wholesome, that a healthy growing internal *air* may always be present, which will greatly facilitate the growth of the vines.

* A superior article of this kind can be purchased of most Nursery-men and Seedsmen, for from five to seven dollars.

ARTICLE III.

Second Year's Management.

Pruning the Vines.—The vines should be pruned in the month of January or early in February, more or less according to the strength; but the Grape makes such luxuriant wood in this country, that I have known fine crops of grapes taken from the second year's growth. However, it is a system that I cannot recommend, nor, indeed, with any fruit trees or vines that are to acquire a large growth. If the habit is strong, it will be sure to be weakened in time. But I would not advise in any case for nature to be impeded by any process to hasten fruiting, which will, in all cases, shorten the future growth and luxuriance of trees, vines, &c: therefore shorten the shoots from four to six eyes, in proportion to the strength of the vine, from the part where it is intended to form itself, which is generally at the front end of the rafter. About the middle of March you may begin to syringe the vines, and let the thermometer range at 45 degrees, which may be raised to 50 degrees, and then to 55 degrees, *fire heat.* But this must be done with caution, as the vine, in all cases, should be broken strong, or the joints will be drawn or *elongated*, which much weakens them, as the same quality is generally in a short joint as a long one, therefore, the more it is elongated the weaker is its nature.

The house may now be managed in every way as hereafter directed, with the exception that it *should not be forced*, and but very few bunches of Grapes be left on the vine. The young wood may be left at almost every eye the first year, in order to furnish the house; the leading shoots may be allowed to have as much latitude as they require in growth.

CHAPTER II.

ARTICLE I.

Forcing the Grape.

Pruning the Vines.—The first consideration in Grape-forcing is in pruning the vines, which may be performed any time in the month of January or the beginning of February. The methods, as before stated, are various. The most simple and generally adopted in this country, with the greatest success, is that which is recommended in page 11.

Forcing the House.—Supposing the pruning to be performed, and the house to be began, the latter end of February, or the beginning of March,—begin by first merely warming the flues at night, and giving *air* on a fine day, to get the house and flues in good order, which will be in a few days, when the *fire* heat may be kept at night to 45 degrees; and the *sun* heat, to 60 degrees, for a week or two, to get the sap in circulation, when the fire heat may be raised to 50 or 55 degrees; and the sun heat to 65 or 70 degrees, with air, on a very fine day. During the process the vines must be well syringed on a fine morning, and slightly in the

evening after a sunny day, as they will, in that case, be in a dry condition and imbibe the moisture freely, which will greatly facilitate in breaking the buds strong. The best time of syringing in the morning varies with the season; early in March, the *house* should be warmed with the *sun* before the syringe is applied, or it will be much *chilled* by the operation. As the season advances, the operation may be performed, by degrees, earlier in the morning, and in time it may be performed at sunrise; but, in all cases, it must be performed in such a manner that the vines will soon dry. *Wet*, remaining on any plant long in the process of forcing, is in all cases, injurious by overcharging the surface of their leaves with water; for, in that condition, they are not capable of going through their proper functions of *perspiration* and *respiration*, owing to the pores of the leaves being stopped with water; consequently, sickness must ensue in proportion to the deprivation.

When the vines begin to break at the eye, an inch or two long, they are to be finger pruned by breaking off the side shoots, leaving only one, which should *be the centre, which contains the fruit in embryo.* The side shoots are generally what are called by gardeners *water-shoots*, and require in all cases to be taken off at an early period, *as they are injurious to the vine by drawing nutriment to an unfruitful branch.*

When the shoots begin to show fruit bunches the heat may be raised at night to 60 or 65 degrees, at all

events it should never be under 60 degrees after this period. The sun heat may be allowed to run to 75 or 80 degrees.

Finger Pruning.—The vines may now be finger pruned by taking away all useless shoots with the finger and thumb, and leaving the vines as regular as possible in all parts of the house. The young wood may now be stopped where fruit bunches show, one or two eyes from the bunch, by nipping it off a little above the joint with the finger and thumb. The weak shoots may be stopped one joint, and the strong, two from the bunch. But where young wood is wanted to fill up vacancies the shoots may be left two or three feet in length, to furnish such places.

Regulating and tieing in the young wood.—The next thing to be attended to is the tieing in, and regulating the young wood, which should be very carefully done by tieing in the shoots neatly to the trellis, with bass-string, in a regular manner, so that every part of the vine has free access to *sun* and *light*. The lateral or side shoots may also be stopped one eye from the main shoot as before directed; and every part of the vine should be kept neat and clean.

Management of the House, in flower.—When the Vines begin to flower or blossom, the syringe must be suspended, as moisture too plentifully applied, will, in a measure, *stop* the proper functions in setting off the young berries or fruit, by their being damped off; but

care must be taken to keep up a moist, brisk, heat, as too much cold retards the growth of the young fruit, which will be perceived by the bunches turning up at the point, which is *always a bad sign.* The bottom of the house and flues may be kept moderately moist in order to give a moist heat. The temperature of the house may be kept at night, at *fire* heat, from 65 to 70 degrees: and *sun* heat in the day from 80 to 85 degrees with air, which may be continued until the ripening of the fruit.

Swelling the fruit.—So soon as the fruit shows in the bunch as large as a very small pea, apply the syringe in a very gentle manner. It will be recollected that the fruit in this state is very delicate, apply the syringe, I say, if in a partial manner on a few bunches that are *set* over the flue at the warm end of the house. When the whole of the house is well *set*, syringe regularly in the morning a little after sunrise, in order that the vines may get dry before it is too strong; and in all cases give a little *air* in the least possible quantity at the back of the house. A brisk moist heat may be kept up, and the house always closed about an hour before sundown; but care must be taken that it is not too *damp*, which is sometimes, perhaps, the cause of *Mildew.*

Thinning the Bunches and Fruit.—When the *bunches* are all *set*, and all is going on well, the house may go under a regular thinning of the bunches, and I would recommend in most cases that one bunch only is left on a weak shoot, and two on a strong. Remember you

want *fruit* next year and if you overload *this*, some deficiency will be in the *next*, if not the present year. Your fruit will not be so well ripened, nor good in quality, and besides, you will bring on a weakness by a heavy crop, and perhaps that pest of *vegetation*, the Mildew. Leave a part of your house thick and a part thin, in a fair *medium*, and if I am incorrect, attach the blame to me. But I must call your attention to thinning the fruit in the bunch, which will require to be done in a neat, clean, and expeditious manner. The time is when the fruit is as large as a small sized pea. For the purpose procure a pair of scissors with long handles and narrow pointed blades. In the operation commence thinning the grapes at the point of the bunch, by taking out all the small sized berries and part of the large, in a regular manner; so that each will have equal room to *swell* in the bunch to its proper size, which must be judged according to the natural size of the Grape, when fully grown. In this operation care must be taken not to prick any of the fruit or any part of the bunch with the scissors, nor bruise them with the head, hands, or any other means, which will greatly injure the growth of the berries in this stage.

The vines may now be regularly gone over by stopping the young shoots, tieing in, and the like, as before directed.

Stoneing the Fruit.—When the fruit is grown nearly to its size, it will begin to swell its seeds or stones,

which will be perceived by the Grapes making but little growth. At this time the house should be kept in a moderate temperature; at night about 65 degrees, and in the day from 75 to 80 degrees. The vines may be moderately syringed, but not too much; as, at this period, it will be recollected that the fruit is not in a growing state, and consequently, cannot imbibe so much moisture. When this process is over, which may be ascertained by cutting the berries and finding the seed hard, the syringe may be more generally applied. The temperature may be now a little raised in order to swell the fruit more freely; and every precaution must be taken to keep a clean and wholesome *air*, by cleansing the house, &c.

Ripening the Fruit.—When the fruit begins to color, the syringe may be suspended, and the house be kept dry. The temperature may be kept from 70 to 80 degrees, fire heat, at night, if the fruit is in haste to be ripened, although 70 degrees will answer a better purpose if not in haste. Plenty of *air* should be given in a fine day in order to color and give flavor to the fruit; in this manner the house may be managed until the fruit is all ripe and cut from the vine. The sashes should then be taken off and the house fully exposed to the *sun* and *air*, in order to ripen the wood previous to the ensuing winter, when the glasses may again be put on the house.

General Remarks on Grape Forcing.—The experienced forcer will perceive that the heat herein recom-

mended is somewhat higher than is generally recommended by practical forcers, who have written on the Grape in England; my object of which is to bring the fruit to maturity early in the season to evade the *Mildew* which in most cases is destructive to Grape late in the summer. My secondary object is, considering this climate of a more clear atmosphere, and more *sun* in the early part of the spring, admitting of more external air to the house, which should be molified by internal heat from fire, in which case I have generally found the impure vapor ascending from internal heat is much rectified by the admission of the external air.

ARTICLE II.

General Remarks on the Vineyard.

After what has been said on the general culture and management of the Grape, it will be proper to make some remarks on the Vineyard and the more general introduction of the Grape-Vine, relative to its becoming one of the chief articles in domestic comforts, as using the fruit when ripe, and preserved, in cookery, and in eating from the bunch as a desert.

In my remarks on the Grape, I shall be very candid relative to the probability of its improvement in quality and producing abundant crops; and I hope the sugges-

tions may be at a future period realized. But as all experiments of the kind must at present be considered as a theory unsubstantiated by practice, it will be well to remind the reader that to put them into operation, he should not go too expensively to work at a hazard.

From many facts and actual observation it has been abundantly proved that the wild apple, pear, gooseberry, currant, and the like, have been the primitive of all the known superior varieties from their progeny at the present day.

From such practical experiments there can be no reason to doubt that the native Grape of this country will not, with proper management, be as likely to be improved in as great a degree of superiority to the wild Grape of the country, as the Newtown pippin is to the crab-apple; or the Sickle pear of Pennsylvania is to the wild pear of the wood. But at the same time it cannot be expected that such changes are to be made in the space of two or three years, but must be a work of time and gradual improvement on the varieties experimented upon.

That indefatigable Pomologist, Van Mons of Belgium, proved that the Apple, Pear, and most primitive fruit improved from seed in a ratio from five to twenty-five to the hundred, in the course of eight or ten generations. The system that he adopted was the raising of seedlings from the seed of the crab crossed by choice varieties, which was allowed to fruit; the most

likely looking fruit was preserved for seed to raise another generation, with which when in fruit, the same method was continued through seven or eight generations. The result of his experiments was that many fine varieties of fruit were raised from the last generation which not only enriched Flanders, England, and every part of Europe congenial to them, but have also found their way into this country through the medium of Horticultural Societies and private individuals, to enrich the Fruit department; and from such analogies why should we not expect, if the same experiments were here tried on the Grape, that the result would be similar. Supposing the desired object to be obtained by the above experiments of naturalizing the Grape and improving the quality in such a manner that no doubts are entertained of its thriving and bearing well in any part of the United States. The next question is to show whether the produce can be grown to an extent to give a good profit to the grower and sell the produce either in fruit, wine, vinegar or virgous, at a price to meet the foreign market, which can only be solved at a time when every improvement is made in culture and manufacture of wine. If the desired purpose be obtained of producing Grapes, from seed or by other means, of good qualities, that will flourish and fruit well in the summer, and the wood to be of a nature to withstand the winter without taking from the trellis or poles, then there will be no doubt that this country will become equally celebrated

as any other in the Vineyard; and until that object is obtained little good can be expected in the general culture of the Grape. For it is not the vine dresser, let him be even the most skilful from any country, that can alter the climate, soil, or location in a manner suitable to Grapes that are, in their nature, tender and liable to be injuriously affected by the changes of the climate. But certain it is, if the Grape can be brought to the desired qualities, favorable locations will be found and like other produce from the soil, every improvement made in its culture to answer the desired end of producing abundant crops, which will be converted into wine, vinegar, virgous, and every use that the Grape is applied to in other countries. In the culture of Grapes in Vineyards, little can be said in this concise Manual only that the pruning, as before directed, will perhaps be the best adapted to this climate.

The soil and location adapted to the Grape, may be found in many different parts; and it is little to be doubted that different varieties will thrive best on different situations, but, in all cases, dry bottoms are to be recommended, and the soil, whatever may be its natural quality, will require to be often enriched with strong manure, as that from Slaughter-houses, night-soil and the like. But for manuring the Vineyard, I recommend that a compost be made of one-third loam, one-sixth old mortar rubbish, and the remainder of manure, as before recommended. Let this compost be

well mixed together and laid on the Vineyard early in the spring, before the frost is out of the ground.

The location best adapted, will, most probably be found to be on a South aspect, well protected on the North and cold quarter. On the base or alluvials of hills or mountains, I think, the larger sorts of Grapes will be found to answer best, and the high locations will very likely suit the smaller varieties. The mode of culture best to be adopted will undoubtedly be found to be similar to that practised in those countries, where the Vineyard has long been a subject of commerce, and the making and management of the wine and fruit will require nearly the same process.

The following list of Grapes are selected as the best varieties adapted to the Vinery, and ripen in succession as they are numbered in the list:

1. Early Oval,
2. White Sweetwater,
3. White Frontinac,
4. Black Frontinac,
5. Black Hamburg,
6. Black Constantia,
7. White Hamburg,
8. St. Peters.

A DISSERTATION

ON THE

GROWTH AND MANAGEMENT

OF

FRUIT TREES.

There are but few things of a more interesting nature when duly considered, than the utility and beautiful economy of nature in endowing mankind with the faculty and means of improving the different kinds of fruit palateable to his taste and wholesome to his constitution.

By a little observation, we find that a kind of primitive ordination of nature has stamped the character of various fruits adapted to different climates, in a manner suitable to the constitution of mankind in any given country; and, furthermore, has given in his possession the means of improving any primitive fruit into almost endless varieties, which, although they all partake of the same nature as their parent, still their qualities are different as regards color, size, flavor and time of duration or eating, which in many fruits, if well managed

may be said to be almost perpetual. Upon the least reflection on any kind of fruit, our most ardent desires are gratified relative not only to the utility, but of various qualities, suitable to the many purposes to which it is applied. For instance, the Apple, in its primitive state as a Crab, is rejected as being unpalateable and unwholesome; therefore it is considered as useless, when on the least reflection it is evident that it is the very essence of its kind: for the Crab, although rejected at table, is a perpetual parent that has given birth to all and the very best varieties of Apples in existence, that are the most useful in domestic concerns. Let the aged of the present day call to mind the fruitfulness and excellence of the best fruits of his youthful days and he will find a falling off in their qualities, and the very best fruits of the orchard of his youth are cankering and dwindling to nothing, while new varieties are springing up and taking their place in the orchard and garden, of fine qualities which render them to the rising generation of mankind the choice fruits of their season.

From many experiments that have been made on the improvement of fruit, it may almost be certain that wherever the primitive of any kind is found indigenous to any country it may be improved to a high state of perfection by culture; therefore it is as reasonable to believe that the time will arrive that the banks of the Hudson will be clothed with Vineyards of fine Grapes

produced from the native, as that of the Rhine or any part of Europe.

Independent of the utility of fruit in our domestic affairs, the orchard and fruit garden may be considered as a fine feature in landscape scenery; for when a large track of land is destitute of the orchard there is not that appearance of mellow fertility that is always conveyed to the observer, when fine crops of fruit are to be seen, which indicate the real comforts of life.

Nutriments of Trees and Plants.

Trees, like all other bodies which are organized, require a proper nutriment for the germination of seed and the further developement of vegetable economy.

The most superficial observer is aware that trees derive their principal food from the *soil* and *atmosphere*, although not in equal proportions. They also require different components, according to the nature of the soil in which they naturally grow: thus the Cherry and Peach are found to thrive best on a light, dry soil, while the Pear and Plum require a deep loamy soil. The same affinity is observable in different kinds of trees and vegetables.

The principal food of trees is found to be either vegetable or animal substance in a decomposed state, in which it enters them by aqueous solution. This

food is principally absorbed by the roots of trees; it is also inhaled by the leaves, its particles being often raised to a considerable height by the winds; therefore it is plain, that plants either thrive or sicken according to the portion of such nutriment contained in the soil in which they grow. *Earths*, as Clay, Lime, Flint and Magnesia, are also absorbed by trees in solution; each particular variety will be found to contain *those* earths in different proportions according to the nature of the soil in which they grow; hence by calcination of corn-stalks, flint is found in the ashes, and plants growing in a chalky soil, are found to contain portions of lime; and by analization each variety will be found to contain a portion of solid substance which it most readily imbibes by aqueous solution. Some authors are of an opinion that water is the sole food of trees and plants, founding their authority on the well known fact that many kinds, particularly bulbs, vegetate and produce blossoms in that fluid. The reverse is, however, apparent, as on calcination those plants are found to contain component parts. The quantity of water necessary for different species is also very apparent, as some plants are found to thrive on the hardest rocks and must obtain their moisture principally by their leaves from the atmosphere, whilst others are known to live wholly in water, and consequently must be of a different nature in their solids.

Atmospheric air, in all cases, is necessary to fruit trees, particularly when in a growing state, in a confined

situation, as in hot-houses, frames, and the like. When unwholesome air is present, trees suffer in proportion to the quantity of improper gas: the most delicate part as the flower, is first affected and most generally perishes; the next is the tender leaves and branches, and so in proportion. But in some cases, as in tender annuals, foul internal air destroys the whole plant in its infant state. To all plants in a growing state external air should always be admitted, if only in the least possible proportion, in order to rectify the internal *air*, as in hot-houses, or other confined places, which is always unwholesome to fruit or plants, in a greater or less degree, in proportion to the external air that is admitted.

Stimulants.

It is necessary that the cultivator of fruit should be familiarly acquainted with the stimulants requisite to carry on the vegetable economy, of which *heat* and *light* are the principal. A proper quantity of *heat* and *cold* is requisite to develope the functions of seeds, and cause the currents of sap to circulate in a proper manner.

Many plants, as *Mosses* and *Alpine* plants, on high latitudes, vegetate at a very small degree above freezing point, thirty-two degrees. The *Gooseberry grasses* and most native herbaceous plants, vegetate in a minimum

heat of perhaps forty degrees. *Apples*, *Pears*, and the like, from forty to forty-five degrees; and the Grape, especially the foreign, requires from fifty to fifty-five degrees. The same affinity is also observable in seeds which are found to vegetate and thrive best in heat that is in accordance with their natures. *Sun-heat* should have a free access to all kinds of fruit, particularly when in a ripening state, as most fruits that ripen in the shade do not possess their proper quality and flavor, although it is certain that fruit often swell to a larger size in the shade; but they are destitute of the other requisites, which can be proved by experience.

Observations on the Roots of Trees.

The roots of trees, being intended by nature as channels by which the principal food is absorbed and conveyed to the different parts, and finally forms a part of the tree, should be very familiar to the cultivator.

By due observation it will be seen that the adaptation of trees to their proper soil is of the greatest importance, as trees placed in a soil uncongenial to them, seldom thrive well, owing to improper food being absorbed by their roots: and in many cases, roots have been known to travel out of their proper position in quest of a more proper nutriment. The circulation of the sap in roots is different in different trees as may be exemplified by

plants and shrubs beginning to put forth their leaves at various periods, in the same location. This fact may be proved by any intelligent observer who will notice the commencement of vegetation in native plants and shrubs, in any given part of the country, under the same circumstances and in the same location.

These trees are all fastened in the earth by the root, and all receive the same temperature, and the natural changes of moisture, in the place where they grow: but their time of vegetation or circulation of sap, is in accordance to their peculiar nature, which varies a month or more. As soon as the soil is sufficiently warm to answer their economy of circulation, the process proceeds.

Observations on the Bud.

The bud of trees is very properly termed by the Botanist, the *hybernacula* or winter quarters. It is formed in the summer, and properly fed and nourished by the descending sap. Buds may be considered under three definitions: first, buds which contain the rudiments and organization of fruits only, as the *Cherry*, *Plum* and *Pear*; second, buds which contain the blossom and wood-buds under the same covering, as the *Grape* and most trailing vines; and thirdly, those which contain all the rudiments of a young plant in embryo, as the *Cherry*, *Plum*, and *Pear*, which are called wood-buds.

Nature has carefully protected those precious appendages of trees, by covering them with a hard, scaly substance outwardly, and a woolly substance inwardly to protect the more tender parts.

It will be found by a due observance of buds, that those which produce the fruit are the most delicate, and of course the most liable to injury by drought, cold and the many causes inimical to them; hence the *Peach*, and many other fruit trees require protection during the winter in the Northern States, particularly those that have been grown under glass, the buds of which are always more delicate than when the tree is wholly exposed.

The blossom-bud being injured in any way, either by cold or other casualty detrimental to it, is generally destroyed; but the wood-bud on the same tree is not, although exposed to the same injuries; and in many cases, as the *Grape-Vine*, the blossom-bud is blinded or destroyed by many causes detrimental to it, although the vine will perhaps break and grow in a very healthy manner.

Observations on the Leaf.

The leaves of trees being the principal organs of respiration, also contribute to their growth by their power of absorption; they are of the greatest impor-

tance in this operation. The surrounding air, whether internal or external, being absorbed by their agency, requires to be of a pure and wholesome nature, in order to keep them in a healthy, vigorous state. We are informed by Botanists that the leaves of trees are synonymous with the lungs of animals, therefore whatever disease is imbibed by them, enters into their system.

When too much heat and moisture are applied in Grape houses or frames where plants are growing, it is imbibed by the leaf, and the consequence is, that the plant is elongated without its proper qualities, the leaves assume a feeble appearance and are often totally destroyed, when the sun and air act on them sufficiently to nourish their more healthy parts. Leaves, when decaying, are most liable to breed many insects, as the Red Spider, Trip, and all other insects which are increased by decomposition, therefore, decaying and dead leaves should in all cases be taken from plants in a state of vegetation.

In conclusion to what has been said on fruit trees and the Grape-Vine, it appears evident that the seed of all kinds of fruit in the common idea, is the primitive, and is perpetual, and that every variety of improved quality must originate from it, either by chance or luxuriant culture; and it is at the same time clear that by crossing the primitive or native fruit of any country, of the same natural order, that new varieties, of improved

qualities, are produced congenial to the country which has given birth to such varieties. From the very best of experiments and authority, it has been proved that in raising trees either from seed, cuttings, grafting or any other mode of propagation, that those kinds that have been propagated in a hardy and natural manner are the best qualified to withstand the natural changes of the climate; and that although by nursing many tender fruits, they are brought to great perfection with attentive culture, it cannot be recommended to answer in a general way.

Any intelligent observer will discover that trees of all kinds require to be so situated that the *sun* and *air* have as much as possible, free access to every part of their leaves, fruit, and indeed all parts of the tree, and that any violence, either by severe pruning, disease, blights, unwholesome food or air that is present, acts on their system materially either directly or indirectly; and as practical observation is worth volumes of theory I leave the perusal of this little manual to the reader under the impression that the articles it contains are written as a *Text* on a subject which can only be understood practically by a due observance to the natural causes of the vegetable kingdom.

THE

CULTIVATION

OF

AMERICAN GRAPE VINES,

AND

MAKING OF WINE.

SECOND EDITION.

BY ALDEN SPOONER.

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E. B. SPOONER, "STAR OFFICE," 102 & 104 ORANGE-STREET.

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1858.

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Southern District of New York, *ss.*

BE IT REMEMBERED, that on the twenty-third day of June, Anno Domini 1846, ALDEN SPOONER, of the said District, hath deposited in this office, the title of a book, the title of which is in the words following, to wit: "The Cultivation of American Grape Vines, and making of Wine, by ALDEN SPOONER:" the right whereof he claims as Author and Proprietor, in conformity with an act of Congress, entitled "An Act to amend the several Acts respecting copy-rights."

J. W. METCALF,
Clerk of the Southern District of New York.

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INTRODUCTION.

It has long been a matter of surprize that the cultivation of Grapes and making of Wine, has not engaged more of the attention and labors of our enterprizing citizens. With a vast expanse of country, embracing every variety of soil and climate, and the Grape growing spontaneously in the woods, from Canada on the north, to the Gulf of Mexico on the south, there could never have been a doubt of its successful cultivation by any one who would give it the requisite skill and attention. The southern States, and Florida in particular, promise the greatest success in producing the European kinds of Grapes; but the northern States, and even Canada exhibit the assurance that native Grapes may be successfully ripened in the open air.

The great success of two varieties of the American Grapes—the Isabella and the Catawba—and the rapid spreading of their cultivation, has induced me to give to the public the benefit of what experience I may have had in their culture. In the year 1838, at the request of Jesse Buel, Esq., then the editor of the paper entitled "The Cultivator," and published at Albany, I wrote a brief sketch of the Isabella Grape, which had obtained great favor on Long-Island, and which I had taken much

pains to scatter abroad, by distributing *cuttings* to all who would accept of them. I also included in my sketch all I had experienced in wine-making. The Cultivator of May, 1838, contains my remarks, which have been republished in other papers, and I multiplied copies in my own paper (the Long-Island Star) for gratuitous distribution. The inquiry for information on this subject, still continues. I am sensible there are some persons of more experience in raising and trimming the vines, and in making wine, and I hope they may hereafter correct my errors, if such shall be discovered. For such facts as did not come under my own observation, I am indebted to the very excellent periodicals of the present day; and it was my object to embrace in a small compass such interesting facts relative to grape culture and wine-making, as *that every man owning a lot of ground of any dimensions, may raise his own grapes and make his own wine.*

CULTIVATION

OF

AMERICAN GRAPE VINES.

BRIEF HISTORY OF THE VINE.

I SHALL not attempt to give a botanical description of the Grape Vine. It is called the *Vitis Vinifera* of Europe, and some have supposed our American Vines to have had the same origin.—There are some forty species, and an immense number of varieties. The practice in foreign vineyards of having different species and varieties in contiguity, would naturally cause an intermingling of numerous kinds with slight shades of difference.

There is no period in the history of man, in which the Vine is not mentioned in language of grateful testimony that it is a blessing of the highest value. Its fruitfulness and its qualities were well known in the days of Noah, and in all subsequent periods of time. Scripture in numerous instances has language peculiarly drawn from the culture of grapes and the wine—the *pruning* of the Vine—the *treading* of the grapes, which was the ancient method, and the *wine press*, are all incorporated with sacred writ.

It is stated that a Helvetian named Helicon first made known the properties of the vine at Rome,

and that the interchanges of commerce soon spread it abroad. Plutarch and Livy give it a Tuscan origin. A late writer, Thiebaut de Berneaud tells us that from the first appearance of the Vine in France the cultivation spread in every disposable corner, wherever a fitting soil and exposure could be found. This excited the jealousy of Rome, who, under pretence of preventing the recurrence of famine, decreed that the Vineyards should be turned into wheat fields, and caused a general grubbing up of the Vine throughout the territories of Gaul. This took place A. D. 92. It was so rigorously executed, that the inhabitants were obliged to resort to beer and other fermented drinks, such as had been in use before the introduction of the Grape. The ferocious Domitian was detested for this violation of the natural rights of the people whom he should have protected, but the edict nevertheless remained in force for two centuries—when Probus, in A. D. 282, restored the cultivation. The restoration occasioned a long festival of rejoicings, and the people with great alacrity renewed the Vine culture, and spread it to all the neighboring nations.

In 1556 the Vines were again prohibited throughout France, on the ground of their monopoly of the earth, and the labor, from more important tillage. After eleven years the law was revoked, and the Vine once more allowed free growth.—About the beginning of the eighteenth century another attempt was made at restriction; and it was not until the revolution of 1789 that every owner of the soil was allowed to improve it in his own way; since which time the prosperity of the Vine cultivation in France has added vastly to the happiness of the people and the wealth of the nation.

OF FOREIGN VINES IN AMERICA.

Many of the attempts to raise Grapes from foreign Vines in the *open air*, have resulted in loss and disappointment. The late Mr. Parmentier, of Brooklyn, Long Island, devoted much labor and expense on foreign Vines to very little purpose. Mr. Loubat also, who had seen much of Grape cultivation in France, planted a vineyard of forty acres at New Utrecht, L. I, which had 150,000 Vines of various sizes, and for some years flattered himself with hopes, which resulted in disappointment. In some few instances in Brooklyn and New York, where the Vines were protected by surrounding buildings, the Chasselas Grape and other foreign varieties yielded well, thereby only demonstrating that such fruit can be obtained if cultivators will be at the trouble of erecting proper houses for the purpose.

In the year 1827, I planted fifty foreign Vines, some of which were from France and obtained from Mr. Parmentier and Mr. Loubat—others were from Germany, and obtained from Mr. Knudsen. In four years I was able to exhibit five kinds of fine Grapes at the horticultural exhibition of New York, at Niblo's garden; but the Vines produced few good bunches, and very soon none at all. The Vines and shoots continued to grow for several years, but the fruit was mouldy and black before the period of ripening, and thus were worthless. Many gardeners and amateur cultivators, made great and judicious attempts to raise foreign Grapes in the open air, but they all gave up the fruitless labor.

Very fine foreign Grapes, especially the black Hamburgh, have been raised in hot houses in New-York, Boston and other places. The late Judge

Buel recommended a cheap green-house, which he described in the Cultivator, for raising foreign Grapes without artificial heat. It is well worthy of trial.

The government of the United States, in order to encourage Grape cultivation in this country, have made several grants of lands in different parts of the southern and western States, to intelligent foreigners well acquainted with the business, who have brought over their foreign vines, and given them great attention. All these have failed, until they adopted the native Vines—a fact worthy of much reflection and investigation. We may presume, therefore, that foreign Vines must be raised in grape-houses, or by patient changes of cultivation be gradually naturalized to our climate.

OF AMERICAN VINES.

In the first discovery and settlement of America Grape Vines were seen in profusion in the woods, and their value and peculiar properties could not fail to become known.

There can be no doubt that Vines have been long cultivated and much wine made in America. In the Spanish colony of Coahuila, in Mexico, on the Rio Del Nort, about the 29th degree of North latitude, fine Grapes were raised and much wine made at an early period of the colony; but the culture was for some cause forbidden by the crown, probably from fear of competition with the vineyards of Spain. It was officially stated by the Deputy from Coahuila to the Cortes of 1812, that this North American province produces considerable quantities of good wine—a number of

districts and vineyards giving wines as delicious as those of Castile in Spain. He adds that the raising of wine is one of the most productive branches of their agriculture, and so great that they supply the neighboring colonies, and even send some of the finest to Mexico.

I learn from a communication of Dr. James Mease, of Philadelphia, that before the American Revolution a quarter cask of wine made by Doctor Howard, of New Brunswick, N. J., was sent to the Society for the encouragement of arts, manufactures, &c., in London, and the society presented him thirty guineas as a reward. Mr. Tasker, of Maryland, and Mr. Antil, of Shrewsbury, Monmouth County, N. J., are named as among the early cultivators of the Grape. Mr. Antil had a vineyard of several acres, and wrote a paper on the subject which appears in the first volume of the American Philosophical Society. He cultivated foreign Vines only.

In 1769 the French settlers in Illinois made one hundred and ten hogsheads of strong wine from native Grapes.

In 1793, Peter Legaux, a French gentleman, obtained of the legislature of Pennsylvania the incorporation of a company for cultivating the Vine. They purchased a farm at Spring-mill, Montgomery County, thirteen miles from Philadelphia, on the Schuylkill. For one year only prospects were favorable; but divisions and dissentions arose and the stockholders sold out in disgust, and the vineyard went to ruin.

In the early settlement of the now city of New York, a gentleman had a very fine garden at Hoboken and raised many Grapes. In the woods of that place are now to be seen very large Vines running wild into the tops of the tallest trees.

It is recorded that in the early settlement of Long-Island a vineyard was cultivated near Southampton, by Mr. Fournier. We understand very good wild Grapes are now in great plenty in the woods and swamps near that place.

At Harmony, near Pittsburgh, a vineyard of ten acres was planted and cultivated by Frederick Rapp and his associates from Germany. They afterwards removed to another Harmony, in Indiana, on the east bank of the Wabash, where they continue the cultivation of wine and silk to the present time.

A Swiss colony settled about fifty years ago in Jessamin County, Kentucky, and raised a fund of ten thou and dollars for the express purpose of a vineyard. They planted foreign Vines *and failed.* In 1801 they removed to a spot which they called Vevay, in Switzerland County, Indiana, on the Ohio river, 45 miles below Cincinnati. Here they planted native or naturalized Vines and succeeded. A recent article in a newspaper says—"They turned attention to our native Vine, first to the Cape Grape, and subsequently to the Isabella and Catawba. After forty years of experience they consider our climate and soil inferior to those of Switzerland for producing saccharine matter, and consequently wine. They say that, in this country, twelve pounds of Grapes are required to make a gallon of wine, and, in the old country, ten pounds. At one time they had forty acres under cultivation; now only five. They say they can cultivate other products to greater profits."

The government of the United States, desirous of encouraging the cultivation of the Vine, and making of wine, made extensive grants of the public lands for this patriotic service, to some of

the distinguished exiles of France, who chose Greene County, in the then territory of Alabama for that purpose, as being the most promising climate for the Vine They planted a small colony of cultivators, who brought out numerous varieties of their favorite Vines; but after great labor and perseverance they were compelled to relinquish it in despair. It was discovered about the time of their quitting, that the Vines of Vevay, Indiana, which they obtained from the Agent of that association at New Orleans, would succeed well. The small remains of the colony were finally successful in cultivating from native Vines.

At Georgetown, in the District of Columbia, Mr. Adlum cultivated a vineyard, and made much wine, of which he, in a patriotic manner, gave specimens to all the members of Congress. He also published a small book on the subject of wine, which I made my guide in the matter of wine-making. His favorite Grape was the Catawba, and his vineyard flourished until his death.

HISTORY OF THE ISABELLA GRAPE VINE.

This justly celebrated Vine has obtained a general cultivation along the coast of the United States, and in Canada. The fruit, when well ripened, is very fine as a table Grape, and it is also well known to make an excellent wine, capable of being preserved for years. Many persons have expressed an interest to know its origin, and I will proceed to state all the facts I have been able to obtain.

The Isabella Vine first obtained its notoriety in the garden of George Gibbs, Esq., at Brooklyn,

Long-Island, about the year 1816. His lady obtained it from North Carolina, and after its value became known, she gave cuttings liberally to her neighbors. A few gentlemen of Brooklyn, in compliment to her, gave it her name, *Isabella*, and exerted themselves to multiply cuttings, and make its qualities known. By the aid of various publications, in the Long-Island Star and other papers, it soon became the cherished ornament and pride of every garden and door-yard. No dwelling is so humble as not to nourish its vine—no yard too small to admit its delicious shade and fruit.

The following letter, which gives the only information I possess relative to the origin of the Isabella Vine, was communicated by the gentleman to whom it was addressed, David Kimberly, Esq., of Brooklyn, and published in the Long-Island Star of July 2, 1838—

WILMINGTON, N. C., June 9, 1838.

Dear Sir :—Please accept my thanks for the paper containing an essay upon the culture of the Isabella Grape. You request a repetition of the history of that Vine, as given me by Bernard Laspeyre, Esq., a native of France, very intelligent, and who resided for many years in the vicinity of this place, and who may be called the father of the Grape culture in this part of North Carolina. Mr. Laspeyre stated that many years past, upon a visit to Charleston, S. C., he became acquainted with a countryman of his (name I do not recollect) who had a few years previously travelled through France and the most of Spain. The culture of the Grape was an interesting topic to both, and his friend invited him to visit his garden, where he had in full bearing a Vine which he brought with him from Spain (I think from Andalusia) and with which he was more pleased than any which had come under his observation. Mr. L. was

also much taken with the Vine, and made arrangements to procure as many of the cuttings as his friend could spare, who stated to him that he had endeavored to spread the Vine as widely as possible in South Carolina by giving cuttings to gentlemen from different parts of the state, whenever he met with one likely to take care of them. The following season, Mr. Laspeyre received a number of cuttings, which he divided with his acquaintances, and among others Gen. Benjamin Smith, from whom (I think) Mrs. Gibbs procured the Vine which she carried to Long-Island.

Mr. Laspeyre planted the portion reserved on his farm, about 18 miles from this place, and in a very few years had a handsome vineyard, which was the " wonder and talk" of the whole neighborhood.

The stage road from this to Fayetteville passes within a short distance of his residence. It so happened that the stage was broken in his immediate vicinity, and a Spanish gentleman, who was a passenger, inquired if no person cultivated Grapes in a country which seemed so well adapted to it. He was told of Mr. Laspeyre's vineyard, and, having plenty of time, he procured a guide and called upon Mr. L., who carried him to see his Grapes. Upon entering the enclosure, his first exclamation was, " Ha, you have got my countryman here, I know him well, and it is one of the finest Grapes in Spain."

The above is the history of the Isabella, as related to me by Mr. Laspeyre; if he mentioned the name by which the Grape is known in Spain, I have forgotten it. Mr. L. was amused at the idea of its being an American Grape. It is generally known here as the Laspeyre Grape, and also as the Isabella. The friends of that excellent Lady, Mrs. Gibbs, give the latter name the preference, and it will, no doubt, be continued.

P. A. S.

It thus appears that the Isabella Grape had its

origin in Spain, and has been adapted and naturalized to the climate of most of the United States. I hear of its cultivation as far North as Canada, but with what success I cannot learn. I should much doubt whether it would ripen well in Canada. In the vicinity of New York it is sufficiently ripe for the table about the middle of September, and is sometimes on the Vines long after the frost, and continues to improve; but if they are unripe on the approach of frost they become worthless. If any bunches remain very late by reason of any peculiar protection, they become exceedingly sweet and pleasant. This particular kind of Grape is here regarded as above all price, and the descendants of Mrs. Gibbs may rejoice that her name and fame are connected with this great and delightful blessing.

The Isabella Vine is particularly adapted to *cities*, as it may be placed in a corner of any small yard, and its Vine carried to any height or to any roof or space which may be desired. It shelters the domestics at their labor, and soap-suds is an excellent manure for its roots. Its qualities are known and respected even among the Vines of Europe. Immense quantities are brought to New York market, and yet the demand is not satisfied. Vineyards are rapidly multiplying throughout the country—twenty-seven acres being thus improved in one location at Croton Point. Enough is already known of its *wine* to pronounce it cheering and delightful; and yet not a gallon has been offered for sale, where thousands of barrels might have been produced.

But the time is near at hand when "every man *may* sit under his own Vine"—and he may also drink his own wine, which "cheers, but not inebriates!"

SOIL—CLIMATE—EXPOSURE.

American Vines can be made to grow and flourish in every situation, and in every part of our wide spread country; but that the soil and climate and exposure is very important to obtain the best Grapes, is undeniable. The soil should be a light sandy or gravelly loam, with coarse gravelly subsoil. Clay soils are unfavorable, and vineyards should never be planted in such soils; but where a garden is located on clay soil, if a Vine is wanted it may be raised a little from the natural soil and a sandy-made soil enclosed in a brick or stone enclosure to favor the Vine. Stony, hilly and rocky grounds, and sandy plains, like those on the middle and eastern parts of Long Island, may be considered friendly to the Vine.

A writer says—"I have seen hundreds of acres of Vines growing in pebbles from the size of a bean and nutmeg to that of an egg, without the least vestige of earth.

Climate.—Our country possesses all the Vine climates of France, Germany, Switzerland and Italy, and a larger district than all those combined.

The sea board and Islands are considered peculiarly favorable to the Vine; but a warm climate gives the best Grape. It appears, however, that European Vines could not be made to succeed in Alabama, and we can therefore only recommend native or naturalized Vines to our cultivators. As we have very numerous varieties, which have been thoroughly *proved* in various latitudes, we need not embark in fruitless labor.

From a comparison with French culture it is believed Grapes may be cultivated for wine in any climate where the maize or Indian corn is a sure crop, and never defeated by the frost.

Exposure.—The most suitable exposure for a vineyard is in sloping grounds open from the south east to the south. No trees should be allowed to intercept the sun's rays, nor should any cultivation be admitted among the Vines. As land is very plenty, and as Grapes and wine will pay well for good cultivation, there is no apology for slighting the proper claims of the Vine.

The following extracts from *Rozier's Memoir on the Vine*, are interesting:—

"The vine is a plant whose transpiration and suction is abundant and vehement, which sufficiently indicates the soil and exposition natural to it. For this reason grounds composed of sand, gravel stones and other rocks, are excellent for its cultivation.

"A sandy soil produces a fine pure wine—the gravelly and stony a delicate wine—rotten and broken rocks a fumy, generous wine of a superior quality.

"A rich, strong, compact, cold or humid soil, which is pressed down by the rains, and which the sun hardens or bakes, is essentially prejudicial to the quality of the wine.

"The most advantageous exposition for the Vine, is that of a gentle slope or side of a hill, facing east and south, on which the rays of the sun continue the longest time.

"Hills in the neighborhood of the ocean and rivers ought to be preferred to all others. The lower part of these hills are not so favorable to the Vine as the upper, and neither are equal to the middle region, the soil being the same.

"All trees are unfriendly to the vine, as much from their roots as their shade. It should never be planted in soil that can produce grain, and because it wants nothing but heat, and thrives best on the poorest ground, This will appear ridiculous to those who look for *quantity*—but as to the quality of the wine, it is in strict conformity with

the laws of vegetation and with experience. I must be understood to speak here of countries only where temperatures are favorable to the success of vineyards. We must except those in more northern latitudes. These general precepts admit of no exceptions."

The celebrated agricultural traveller Arthur Young, says immense tracts of land may be ranked in France among the most valuable, which in the British climate would be absolutely waste. In his journal he says—

"*Pellecoy.* P ass v ineyards of which there are many so steep that it is strange how men can stand at their work. One-third of the country under vines, which are planted on absolute rocks, but calcareous.

"*Cohors.*—Nineteen twentieths under Vines—many more than two hundred years old!

"*Plaisance.*—Vine grounds double in price to wheat grounds.—In 44 1-2 degrees of north latitude.

"*Poton, Chateau-rault, to les Ormes.*—l'oorhills with Vines sell equally with their best vale lands, in 46th degree north.

"*Champagne.*—Two-thirds of the country around Ay (in 49 degrees N. lat.) under Vines; and here all the famous Champagne wines are made."

PROPAGATION OF GRAPE VINES.

Vines are propagated by *seeds*—by *buds* or short cuttings—by *cuttings*—by *layers*—by *grafting*.

Planting seeds of Grapes.—It is a general law of nature, and manifested as well in the vegetable as the animal kingdom, that a material change of climate requires time to effect a healthful assimilation. It cannot well be doubted therefore that

European Vines may by degrees be naturalized in our country, and I presume some of our excellent Long-Island cultivators are now experimenting in this matter. If the seeds of European Grapes, and the buds of European Vines raised here, can be brought to germinate, we may be sure of success. Most of our good Grapes may be traced to their European origin ; and the field now open for procuring new varieties by seedlings and grafting, may afford both profit and delight to amateur cultivators as well as to nursery-men. We should procure a seedling progeny from the best Grapes, and from these select the best. The seeds of these should again be sown, and the Vines will be better adapted to our climate. This is the way to *naturalize* foreign Vines.

The innumerable varieties of Grapes in every country are no doubt the production of seeds dropped by birds. As most of these are *diœcious*, or without having the stamens and pistils on the same Vines, they are in most cases unfruitful, unless the corresponding Vines are contiguous. Here there are thousands of barren Vines, (called *male* Vines) growing in the woods, which may form good stocks to graft upon. It is better to procure cuttings of well known Vines, than to lose time and labor with producing from seeds. A seedling Vine will show blossoms in its fourth or fifth year.

It is unnecessary to detail the mode of procuring Vines from seeds, as the process is simple and well known. It is mostly done by the aid of pots in hot-houses and green-houses ; but the native varieties may be raised from seed in the open air.

By Buds.—Take single joints of the Vine and cut them at half the distance from the next bud each way—dip each end in a warm mixture of about

two parts of rosin and one part of beeswax—put them about an inch deep and about ten inches apart in mellow earth, somewhat moist,—strew some horse-dung over the rows, and if the weather should be dry give them occasionally a watering.

In the 3d volume of the Memoris of the Philadelphia Society for promoting Agriculture, Mr. Matlack, giving an account of a speedy mode of propagating the Vine, says—"Take a single joint of the Vine you choose, cut it off at half an inch above the eye—cover each end with a sticking plaster of any kind, and set it in a pot of garden mould—the eye of the cutting must be covered with garden earth and then watered to settle the ground. After this, lay half an inch of horse-dung on the surface to keep it from becoming dry and hard—place the pot in your hot-bed, &c."

Loudon's London Magazine states that Mr. Pillaus "takes an eye from a Vine in the month of March, and from it produces in the following April or May twelve month, a handsome plant, bearing bunches of ripe fruit. The correspondent saw several pots with such buds in various stages of progress. The process is not explained.

By Cuttings.—Any well ripened wood of the *last* years growth is good for a cutting, but the nearer it is to the old wood the more likely it will be to succeed, and even if a small piece of the old wood remains it will be all the better. A cutting should embrace three or more buds, and should be taken from the plant before the circulation of the sap commences, and be from six to twelve inches in length. They are taken from the Vines at the pruning in March (or may be taken at any time between the first of November and first of April) and cut to their proper dimensions in the following

manner. About an inch of wood is left above the upper bud and is (afterwards when set in the ground) cut sloping at the back side from the bud in order that it may be protected. They are then buried in the earth, or kept in a cellar until wanted for setting out. They are first set in a garden or well protected ground, and at a distance of six to twelve inches apart in rows which may be a foot or more apart. At the lower end, which goes in the ground, the wood is cut as near to the bud as it can be without injury. They are set in the ground so deep as that the topmost bud shall just come to the top of the ground, so as to receive the benefit of earth and air, as this is the only bud which shoots above ground—the others going to the formation of roots (Fig. 1, p. 36.) If the season should be dry they will require watering several times. I consider a shady place, a spot but little exposed to the sun, as being preferable for cuttings. Sometimes they are put endwise in a pot or box and filled in with earth and watered. In this manner a great number may be put in a small space or transportation. I once successfully sent cuttings from New-York to Little Rock, in Arkansas, by way of New Orleans. These were placed in sods of grassy earth, a little moistened.

The cutting will in the first year throw up a shoot from the top bud. If two should come forth the weakest must be taken away, and if none should come it is not certain that the cutting is dead, as it will sometimes throw out a shoot under the ground and push its way to the surface in the next season. If the cutting throws out a strong shoot the first season, you may, at the March pruning, cut it down to two buds from the main stock, (Fig. 2, p. 37) or if a weak shoot cut it to one

bud. The young Vine is sometimes transplanted to its permanent place at or about this time, but I would not recommend it until the third year from the cutting.

In the introduction into Switzerland of Vines from abroad it was frequently found that the plants of foreign cuttings have refused (though arrived at the proper age, and possessing a vigorous maturity) to unfold a solitary flower. Cuttings from such plants have been tried, which have blossomed and the flowering been succeeded by abortion.—From the plants of succeeding cuttings other cuttings have been cultivated, following up the system for several seasons, till in the end a complete success has crowned the experiment; and it has been proved that the process of acclimating the stranger plant has not reached its full accomplishment until it has passed through *four*, and sometimes five generations of the Vine.

By Layers.—Vines are also propagated by *layers* which consists in bending down a branch, while attached to a stock, into a channel dug in the earth, and burying it at a proper depth in a curving line with the end having two buds above the earth, and strongly pegged to its place, so as not to lift by its own elasticity. Roots will start plentifully from the part in the earth, and when it is well rooted it may be cut from the parent Vine and transplanted.

When a Vine becomes old or injured we sometimes make layers to continue it, and therefore do not cut it from the main stock. This is a good mode, and is much practiced in France to supply vacancies in Vineyards.

By Grafting.—In the spring of 1832, I grafted thirteen wild Grape Vines on my ground and they soon grew to a considerable length. In the fall of

that year I observed the wood did not ripen, and during the winter they all perished. By reason of its being in an unhealthy location I abandoned my vineyard, and did not renew the experiment. My mode was to cut the stock below the surface of the earth, and make a clean split or cleft, fitting the scion as a long wedge merely into the wood, and making the bark, on one sideof it to match, where it would fit. I then packed the rich mould around it. Another mode is to bore holes with a gimlet or a bit, and fit the graft with a shoulder to the square stock. Other modes are practiced, and any skilul hand would, probably, be successful.

The great difficulty in grafting is the liability of the stock to bleed so profusely that the graft cannot unite with the stock. This induces some gardeners to delay the operation until the blossoms begin to show out; but as in the latitude of New York the sap begins to rise in February, that is the best time to graft. If not performed in February it should be delayed till the second week in May. The grafts or scions should be cut a month before wanted for use, in order to keep them back, and not to be as forward as the stock; particularly if to be done at the latter period, the lower end of them should be wrapped in moss a little damp, or stuck in a potato. The modes of grafting are well known, but the Vine is more difficult to graft than common trees.

In cleft grafting the scion should be as near as possible the size of the Vine, so that the bark may fit. If the stock is too high a flower pot or box may be filled with earth and the stock thus covered. Grafts thus fitted sometimes bear the first year.

A correspondent of the N. Y. Farmer says—"At New Orleans, I saw a very fine muscadel

Vine in the garden of a horticulturist in the upper Fauxburgh, which was grafted, as he told me, on a native stock while one which stood immediately contiguous, but which had not been grafted, was unthrifty and insignificant in appearance, and bore comparatively no fruit at all. They were both planted at the same time, and were then sixteen years old, so that the experiment in that instance was completely decisive, that unless grafted on native stocks they will not succeed."

Mr S. Weller, of Berkleyville, N. C., succeeded in grafting a variety of scions from Pensylvania, on the Fox Grape and other native stocks of his neighborhood, and thus obtained a variety of good sorts.

I have known grafting by *approach*, as it is called, to be successful. It consists in bringing the branches of two Vines of different kinds together, just as the sap begins to ascend, and cutting each branch at the side so that they may unite and the sap of each intermingle. Both will probably grow and the preferable one may be cut from the parent stock.

Many operators do not succeed well in grafting; but as it is essential, we would inculcate the most careful experiments in this matter. Mr. Herbemont says—

"The mode of grafting which I practise usually, and which is attended with no difficulty, and very seldom fails, is as follows: If the Vine I wish to graft in is in the place I desire to have it, all I do is to take away the earth round it, to the depth of four or five inches, saw it off (or cut it off with a sharp knife, according to its size,) about two or three inches below the surface of the ground. (This depth may be regulated by the length of the scion used.) Split it with a knife or chisel; and having tapered

the lower end of the scion in the shape of a wedge, insert it in the cleft stock, so as to make the bark of both coincide, (which is perhaps not necessary with the Vine) —tie it with any kind of string, merely to keep the scion in its place; return the earth to its place, so as to leave only one bud of the graft above the ground, and the other just below the surface, and it is done. If I have no Vine where I wish to have one, I dig it out of the woods, &c. &c.; cut it off as above described; insert the scion; tie it and plant it where wanted, leaving, as in the other case, only one bud or two above the ground. All the care that it now requires is to surround it with sticks, to prevent its being trampled upon or otherwise injured, and to notice the shoots that may grow below the graft, that they may be immediately taken off close to the stock, taking care, in so doing, not to move the scion or graft, which might prevent its taking. Such grafts usually grow as soon as the other buds of the Vine in the neighborhood; but it sometimes happens they are much later; and I have had some that did not push till about June—even as late as the middle of that month.

When the stock, or the Vine into which you wish to insert a graft, is too large to be conveniently split, as in the last mode of grafting, as when they are several inches in diameter, after having sawed it two or three inches below the surface of the ground, nearly horizontally, I take a gimlet, or (which is best) a carpenter's stock and *taper-bit*, and bore one or more holes, according to the size of the stock, about an inch and a quarter deep. I then prepare the scion, (which in this case ought to be selected pretty large,) and by cutting the bark and a little of the wood all round, within an inch and a quarter of the lower end, fit it to the hole, and push it in till the shoulder of bark, made by the cutting, as here above described, comes down to the sawed surface of the stock; and if the stock is large enough to require two or three grafts, after having fitted them all in, I return the earth, leaving only one or two buds at most above ground, as above, and the grafting is done. As this last method of grafting usually

succeeds as well as the first, it would seem to indicate that it is not necessary in grafting the Vine, as it most undoubtedly is for all other fruit trees, that the bark of the stock, and that of the scion or graft, meet and coincide exactly; for, in the latter case, the scions are inserted in any part of the stock.

All that remains now to be attended to is, as to the best season for grafting the Vine, and the best manner of keeping the scions until that time. I have generally succeeded best when I have grafted late in the spring, and just before the buds of the Vine burst into leaves; that is, when the sap is flowing pretty freely. It is, however, a matter of some importance that the scions should have been kept back, if possible, so that their buds are only beginning to swell, and this must regulate the time of grafting. The scions may be kept back, and their vegetation retarded, by burying them in as cold a place as can conveniently be found—such as the north side of a hill of a house, fence, &c.; in short, where the ice and snow remain the longest. A small trench, a few inches deep, is made—the scions laid flat down in the bottom, and entirely covered. I think a better way still, (one, however, which I never had an opportunity of trying,) would be to put them in a box of sand somewhat moistened, and deposite the box in an ice-house. The scions being thus kept back, may be used for grafting with complete success, so late as when the Vine for the stock is in full leaves. I have thus grafted Vines sent me by mail from the north *as late as June*, and they grew well. I should always prefer, however, to do it earlier, when it can conveniently be done."

Berneaud says, "there are several kinds of grafting used for Vines. Shoulder grafting succeeds well on old stocks—so does budding, or insertion—but the most common are slit-grafting and tongue-grafting. Latterly escutcheon-grafting has been much used in spring before the ascent of the sap

Grafting by approach also will succeed, but the most favorable of all methods is crown grafting on the root."

Vines in Pots.—In England, where Grapes can only be cultivated in hot-houses, some of their best gardeners force their Vines in pots in the following manner. They take a cutting of young wood of three, four or five feet in length, and coil it in a large pot, rubbing off all the buds but two, and leaving those buds at or near the surface, the weakest of which is afterwards rubbed off. It is then placed in a hot-bed, and soon puts forth and fills the pot with roots. It may be re-potted and extended according to circumstances. By putting the pot containing the Vine within another, and filling the space between them with soil, a uniform moisture may be preserved. In our country the gardeners and ladies who cherish house plants, may in this way obtain fine foreign Grapes.

"Any one who is anxious to have Vines in pots with Grapes fully grown should, at the time of pruning, take the stem through a hole in the bottom of the pot, and lay the rest of the Vine from the bottom of the pot in the ground For such purposes I take the old shoots that are to be cut out that season. For the pots I use the same compost as for the border. I always keep rotted dung about the pots, as it makes the Vines strike much sooner than keeping the pots dry. I have had twenty-six good branches in pots, and could have had more but for thining. When the fruit is at maturity I cut the old branch by the bottom of the pot, and remove the plant at pleasure for ornament."

Another Mode.—In the spring, before the buds swell, take a healthy, well ripened Vine, and draw it through the hole of a large flower pot—fill in

earth, and cover the pot with moss or coarse manure on the outside, to keep in the moisture. About the last of August cut the shoot *half off* at the bottom of the pot. In October cut the branch entirely off, and carry the pot with its load of ripe Grapes to any proper place. With proper treatment the fruit will hang on till February.

OF PRUNING AND TRAINING.

The Isabella Vines are sometimes so extremely exuberant in their growth and foliage, that it is not easy to prescribe rules for pruning and training, which will suit all cases. As they are much cultivated in gardens—in hot houses—over arbors and trellises, and often in the espalier form, I shall give some general remarks which may enable those who cultivate but two or three vines, to *do their own trimming;* as it is sometimes inconvenient or impossible to procure a *professor* to trim your Vines —such persons being in great demand at the trimming season.

After your Vine is transplanted to the spot where it is to remain, you are to train it according to the *space* which you wish it to cover. I would advise, if the arbor, trellis, fence or house will allow it, that it be trained about a foot from the ground, in two shoots or branches, forking each way from the main upright stock. It is thus within reach for a time; but you will soon require ladders to trim the Vine and gather the fruit.

Let it be particularly observed that ☞ *the fruit always grows on the shoots of the* PRESENT *season, which spring from wood of the* LAST *season.* This is very important to be known and critically

observed by every person who attempts to prune a Vine. The appearance of the wood will readily indicate its age and quality, and a little observation may make any discreet person a good trimmer.

First Pruning.—The first or *winter* pruning, as it is called, takes place in March, although it may be done from the first of November to the first of March, if the Vines are not frozen. I prefer the early part of March. It consists in cutting out dead wood—shortening the runners—and training and tying to the supporters. If your Vine is under five years old, you would do well to follow the rules herein laid down; but if it is older you must exercise a judgment founded on the extent of your supports—the strength of the root, and the feed or manure afforded to it. You will see at Fig. 6, p.46, the mode of trimming and training as practiced in vineyards, which may readily be adapted to other situations. A vine may well be allowed to bear *eight* runners, trained horizontally or vertically, according to the taste of the cultivator, or to the situation of his supporters. Of these *four* may, at the winter pruning, be shortened down to a single bud, and the *four* others intermediate be trained vertically, in a serpentine form, so high as to give the *number of buds* to which you will limit your Vine. The long branches will bear fruit the present year—throwing out a shoot at every bud, and every shoot bearing three or more clusters. These will be cut down to a single bud at the next winter pruning. The intermediate four buds or spurs will each send forth *one* shoot, which must be trained vertically, in a serpentine form, between the bearing branches on the trellis. These are intended to make bearing wood for the next year, and must not be allowed to bear fruit except at

every alternate season. In this mode the Vine may be perpetuated, and kept within a reasonable compass; but if some such rule is not adopted your Vine will grow beyond your reach, and bear fruit only at the extremities—leaving an unsightly mass of large old branches near the ground. In this country, where Vines if neglected will sometimes cover an acre of ground, and become dead or worthless, in a few years, it is necessary to look to its perpetuity by good cultivation and keeping it in proper compass. It is proper in the spring of the year to strip off the ragged bark and moss which gathers around the trunk, which will otherwise become a harbor for insects and have a bad appearance. Washing with soap suds gives the trunk a clean and healthy aspect.

At this pruning the branches should be well fastened to the supports, particularly at the extremities. Strips of bass-wood matting are good for the purpose.

When Vines from any cause are trimmed as late as April or May, they will discharge much sap—or "bleed" as it is called. Some consider this as very injurious to the Vine, but I think the disadvantage is much over-rated. If it is thought neeessary to stop the bleeding, a little fine plaster of Paris may be applied with the fingers to the place cut, or a little gardner's wax.

A potato stuck upon the end of a bleeding Vine will often stop the running.

Second Pruning.—From the 1st to the 10th of May (according to the season) the buds are putting forth into leaf and generally two or three branches at every bud or joint. They then require the second pruning—the first having taken place in March. I then rub off the superfluous buds, leaving

but one shoot to each bud. This process I call "budding," and it is essential to get good fruit and strong wood on the remaining shoots, and prevent the future crowding and entangling of the shoots. They are disengaged with a slight touch, and a short time will suffice for many Vines.

Young Vines are often tied to a single pole or stake until three or four years old; but good care must be taken that they have this second pruning, or they will suffer greatly by the neglect.

If old Vines are neglected at this budding, as they generally are, you will have a tangled knot of branches at every fruit-bud—radiating from one point—and your Vine will soon get into inextricable confusion. If not afterwards taken out, you will have numerous shoots and many clusters of very poor fruit; and at the March pruning all the tangled wood must be taken away.

Third Pruning.—The third pruning takes place about the middle of June, after the Vine has passed the flowering, and must be done with great care, and as little agitation of the Vine as possible. At this time I cut off with shears or scissors, or pinch off with finger and thumb, the *laterals*, which spring out of the green shoot on the side *opposite* to the fruit. They may be taken off at any time during the season, but not quite down to the shoot. It is best to do it at the proper time, before they have acquired size and strength, at the expense of the rest of the wine. If the tendrils or claspers are not required to support the vine, they may be clipped off also.

After the berries are set good cultivators take off branches of the fruit, to prevent the over-cropping of the vine. Every fruit-bearing shoot is thus reduced to the number of clusters which it is re-

quired to ripen. This is essential when the finest table grapes are wanted, but not so where wine is made, unless it is considered necessary to perpetuate the vine, and prevent its redundance. Few persons have courage to prune the vine to the great extent which experienced vignerons deem necessary ; but if they will make experiments, and institute comparisons, I am persuaded the permanent advantages will be in favor of close pruning, and keeping the vine to its smallest dimensions. If it is from any cause omitted, the leading shoots run beyond reach, and fruit will grow at the extremities, and a long and snake-like trunk will display its ragged and unsightly appearance on your trelis.

In vine growing countries, so particular are the proprietors to have their vines closely pruned, and not over-cropped, that where a vineyard is leased, it is customary to insert an obligation limiting the lessee to the particular number of buds or branches which he may allow on each vine.

I formerly practiced a *Fourth Pruning*, called *stopping*, or *shortening*, as recommended by Mr. Cobbett and others. It was done about the middle of July, when the fruit had obtained about half its growth. I then shortened all the branches having fruit on (except those retained for permanent runners) by cutting them at two or three joints forward of the fruit. This was considered important to the development and ripening of the fruit, by the removal of green wood and leaves ; but subsequent experience has led me to doubt the propriety of this pruning for the Isabellas, as the vine is sure to send out new leaves, and sometimes untimely fruit, if it is improperly pruned either by design or accident.—I think best, therefore, to let

the sap expend itself in giving length to the shoot, which will be taken off at the following March pruning. I would particularly caution all persons against taking off the leaves, which are called "the lungs of the plant," and are vitally essential to the ripening of the fruit. The best fruit is always in the deepest shade, and if by any chance it becomes exposed to the sun, it is injured thereby, and becomes inferior and sour.

In Mr. Colman's late tour in England, he quotes from a practical gardener some directions for the management of vines as follows:—"With regard to the management of the vine when fruiting, I invariably stop the shoot one eye above the bunch and it is the practice of the best gardeners in England. I generally leave one shoot not stopped without fruit, and to fruit next season, and cut the shoots out that have borne fruit this year. On the shoot-spur system, every shoot is stopped an eye above the bunch, except the top one, and then it must be managed like the rest; all the lateral shoots must be stopped an eye above another until they cease growing, as the more leaves you get, the fruit swell larger."

Mr. Prince, of Flushing, in the preface to his recent nursery catalogue, says—"In regard to pruning, the American varieties simply require such thinning out during the winter as is necessary to prevent the branches injuring each other by contact, and the removal of such weak spurs as are immature and imperfect; but no fear should be indulged that the vine, if in good soil, is not capable of maturing its fruit on any extent of branches it may naturally produce—as, among the most productive vines found in Carolina there are many instances where a single vine covers an acre.

Summer pruning is only called for in locations where the vines are confined to too narrow limits, and then but very partially, as any considerable pruning will cause the fruit to turn black and fall off, and even cutting off the leaves will prevent the maturity of the fruit, as they are the conductors of the essential nutriment from the atmosphere to the fruit, and to the whole plant. The foreign varieties being natives of a much milder climate require considerable pruning, and but a moderate proportion of the vigorous shoots should be allowed to remain, it being necessary in this case to substitute skill and artificial culture, in order to remedy the inappropriateness of climate. The most delicate foreign varieties do not succeed in this latitude except under glass; but in that way they ripen well, and are exceedingly productive."

I should infer from this, that Mr. Prince had changed his mind, respecting the pruning of American vines, since the publication of his book in 1830.—His experience corresponds well with others, as the very great exuberance of our native vines will not admit of the close pruning given to all foreign vines.

Italian Training.—In some parts of Italy the vines are planted in rows about twenty feet apart, and the plants in the row at the distance of six feet from each other. Instead of being, as in Switzerland, cut down to the height of four feet, they are suffered to shoot forth their branches to the extent to which nature limits them, and the fruit may be in ripening clusters, frequently twenty feet from the ground. The support is the Mulberry tree, the branches of which are reduced to the length of five or six feet from the trunk at the point of diverging, the inner shoots being so cut as

to form a frame, resembling in shape the cone of a wine-glass.

Scaffolding.—Mr. Weller, of Brinkleyville, N. C., speaks of *scaffolding* his vines to give free passage to carts, and considers hogs beneficial in a vineyard, to keep down grass and weeds. His scuppernong vines are 30 feet apart, and all other vines 10 feet each way. Posts 10 feet apart to support the scaffolding.

Taking off Leaves in the Fall.—"It is an axiom of Mr. Knight, that all vegetables which require to be left in a state of inactivity during winter vegetate sooner in the spring, if that state of inactivity is brought on in autumn. Salisbury cites a case which strongly verifies this rule in regard to the grape. A vine of the Munier, in Yorkshire, bore 1000 to 2000 bunches of fruit annually, not twenty of which were ripened in a season, under ordinary management. The vine was pruned and stripped of its leaves on the 20th of September, seven years in succession, after which it ripened half a crop in ordinary, and a whole crop in warm weather.

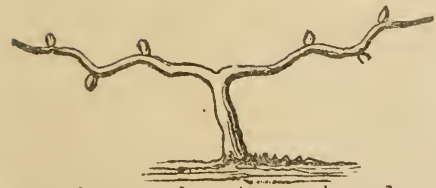
Fig. 1.

The *first* year you have the cutting only, with one bud at the surface of the ground and two below. The top is cut sloping from the bud, that water may not run upon the bud and injure it. (See Fig 1.)

Fig. 2.

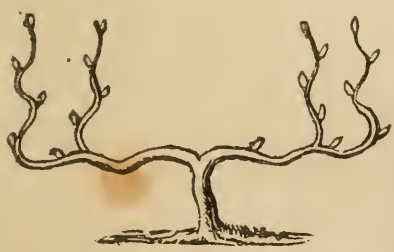
The *second* year you will have one strong shoot of many buds. In March you cut off all but the two lower or best buds, and suffer them to grow long and strong, for your main branches, to be afterwards trained horizontally, if such is the plan of your abor or supports.—(See Fig 2.)

Fig. 3



The *third* year you trim it in March in the forked or branching form, and may leave four or six buds, two of which mny be allowed to bear fruit. (See Fig. 3.

Fig. 4.

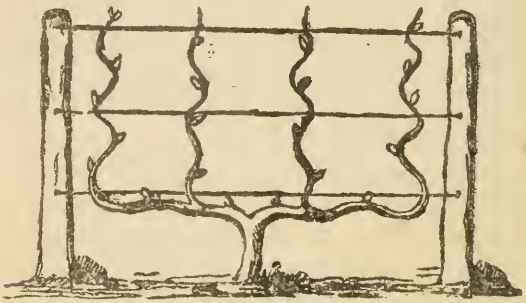


The *fourth* year you may train four shoots vertically from your main horizontal branches, and may have a dozen clusters of fruit. — The intermediate shoots must be traine for next year's bearers, and the fruit rubbed off to give strength to the shoot. (See Fig. 4.)

The *fifth* year the vertical branches are to be trained to proper distances, having a bud on the horizontal branch between each, to be trained,

without fruit as a next year's bearers. When the main branch reaches the extent of the trellis it may be turned upward, vertically. (See Fig. 5.)

Fig. 5



After the fifth year the vine may be trained to a proper economy of the trelles or supporters, and with regard to access for pruning and gathering, or shade where it is desirable—training some and pruning others, so that all parts of the trellis be properly covered—sometimes encouraging, or allowing to remain, a new shoot on account of its position, and at other times taken out old wood, to give place to more sightly or better shoots. Regard will be had to beauty of appearance and symmetry, which are generally in accordance with the productiveness and perpetuity of the vine.

PLANTING AND TRANSPLANTING.

We have described the mode of propagating the vine, but as the planting or transplanting is a matter of importance to its future growth, much care must be taken in that branch of culture.

Although the vine will live, if transplanted in a

proper manner, any season when the earth is not frozen, yet many good reasons might be given why the *fall* is the best for that purpose. The roots will become settled, and the moisture of the earth and the alternations of the weather will probably start them, or prepare them for an early start in the spring, and thus much time will be saved.—The ground should be well ploughed or dug up, and a hole made about two feet deep, and large enough to admit all the roots without crowding. Some good black, top soil from the border must be put in the bottom of the hole, but *no manure* of any kind, as its heating and fermenting qualities would injure, if not destroy the plant. Set the roots on the top of the dark mould and throw the earth in loosely, breaking the lumps—pull the stock up a little and shake it, that the earth may get among the small roots. Fill in the earth to within three or four inches of the surrounding ground, and pour a few quarts of water therein, enough to penetrate to the root. The ground should remain depressed around the stock. It should immediately be staked, or supported, to prevent the wind from straining it.

In cultivated ground, vines may be planted 40 or 50 feet apart, as apple trees are in a orchard. In these cases they should be trained long and suffered to lay upon a high platform, made of poles on crotches. In this manner they may be raised out of the way of cattle or of thieves. and be made a delicious shade for man and animals.

MANURING THE VINE.

Although the vine will flourish on poor, dry, and sandy soils, yet it nevertheless, after a few years

exhausts the soil around it, and requires manure. But it must be given with much prudence and not in excess. Liquid manures are to be preferred, and stable manures avoided. Leav s of all sorts, and peet or swamp earth is desirable. Bones and animal manures from slaughter houses are much used, as also lime and gypsum. Soap suds, soot, poudrett, ashes, of all kinds, street and road manure—all are good for the grape, and every family makes enough for several vines. Fish and sea weed are also much used in France, but the latter is said to give a peculiar taste to the wine. New earth must be applied when the vines are on a side hill, to replace that which washes away. If the vines become yellow, it is an indication of weakness in the root, and that manure is required. It is best applied in the fall, or early in the spring. Guano in a liquid state, and sparingly, is good.

FORCING GRAPES IN HOT HOUSES.

Mr. Julius W. Paulsen. who was in 1838 a Gardner with Joseph A. Perry, Esq, of Brooklyn, N. Y., translated from a German newspaper, and gave to the public a most inteteresting and important article on the culture of the grape vine, published by the Horticultural Society of Hamburgh. Mr. Paulsen remarks:

"The advantages of this new system over any other, until now known practice, consists chiefly in the following:

1. It produces *ripe fruit* in the middle of the winter, when any kind of fruit is always most acceptable and esteemed.

2. It requires *after the first year* no more expense than common graperies, where they have ripe fruit in the months of May, June or July.

3. It does not, like other forcings, weaken the constitution of the vines.

The last advantage *is the greatest of all*, as you only change the season of vegitation—and observe, so soon as you acquire this important article exactly, by giving them spring, summer, fall and winter, the grape-vine must thrive as thriftily, and bear as abundantly, as in its open native soil.

The public will excuse me, if I take the liberty to remark, that it will be impossible to expect any advantage from this new system, or any other kind of forcing grapes, if they want to raise Green or Hot-house plants with the grapes. *They will never obtain half a crop, and be only disappointed.*"

New method of obtaining a very early crop of Grapes, in Forcing-houses. Published by J. A. Ohlendorff, Esq. President of the Horticultural Society and Director of the Botanical Garden at Hamburgh.

TRANSLATED BY JULIUS W. PAULSEN.

The Horticultural Society of Hamburgh, at a sitting in November, 1835, offered a premium of eight Hamburgh ducats, to be awarded in 1837, to that individual, who should succeed in producing the largest quantity of highly flavored grapes, not less than half a pound in weight, at a period not later in the season, than the 15th March.

Mr. H. Davis, superintendant of the forcing-houses of E. Steer, Esq., in *Hamburgh*, has succeeded by a new, and until now, unpractised management in ripening highly flavored grapes by the 14th of January. Mr. Steer having exhibited at the meeting of the Horticultural Society three different kinds of grapes as samples, the Society unanimously resolved, to award Mr. Davis the premium of the eight Hamburgh ducats. Mr. Davis's method of procedure is quite novel to us, and will prove of the highest importance to those who desire to grow very early crops of grapes. While at Demerara and Trinidad, he observed with admiration the judicious

management of the inhabitants, by which they have a continuous crop of ripe grapes throughout the year. For that purpose they make choice of a border planted with strong three year old vines, of the following late bearing kinds; black Alicant, Chasselas rouge, and blue Frankenthala. If the owner of such a border wishes to have ripe grapes in January, he sews up the vines in a coarse, loose linen canvass, lays them down, and covers them closely with wooden shutters. These shutters must be covered with about two feet of earth, and then an extra covering of leaves over the whole, sufficient to prevent any influence of the sun.

Although, in the experiment made by Mr. Davis, the vines employed were but one year old, he still succeeded, perfectly, in raising a crop of ripe grapes by the middle of January. The forcing-house was heated by steam, and Mr. Davis suggests, that in vineries heated by flues, the vines should be well syringed in a temperature of 16° 17° Reaumur. The Society are gratified to have called forth, through the means of the premium awarded to Mr. Davis, this ingenious method, practised in tropical America. Although Mr. Arkwright exhibited before the Horticultural Society of London, twenty-five years ago, grapes ripened in January, yet his method required at least three years preparation for the late ripening varieties. Mr. Arkwright's method appears to have consisted in the use of pine-houses and vineries, adapted to produce a later display of their leaves; but this method, if a successful one, was not sufficiently made known in its details, to be of any public advantage. In Mr. Davis's method, vines are selected which have never produced fruit, and they are retarded by a double repose, from their usual growth, in order that they may push at a late period with the more vigor.

It is a well known fact in vegetable physiology, and one which must be observed in all early forcings, that there is a period of vegetation in summer, and one of repose in winter, in all plants. All vegetables produce, with few exceptions, their blossoms and fruits *once* in the year

and then return to a state of repose, in order to collect new vigor for the new vegetation. In the same way the grape vine will long produce fruit annually, though at different seasons, if the period of repose be changed and effectually carried out; rest being a leading rule, without which no plant can produce good fruit. To attain this, the vines, after they have been planted one, two or three years in a prepared house, must be forced as early as possible in a temperature of 15° to 17° Reaumur, so as to obtain healthy and vigorous shoots, which must be allowed to bear no fruit or lateral branches. in this way strong vines, and of a necessary length, will be obtained. By the end of March these vines will have grown so much, that the wood will be prepared for ripening in the month of April, which must be effected by a decline of temperature to 8°—10° Reaumur. In the beginning of May the vines must be taken down, and, after having lain fourteen days, they must be sewed up in coarse canvass, covered with shutters, and the shutters with earth and leaves. There they must remain until the end of July. In August begin to air them by degrees, and in the month of September the covers should be taken off, the vines trimmed and tied up. The forcing should now commence, giving the vines a moist atmosphere, and a temperature of 16°—18° Reaumur, until the fruit is ripe.

The season of the vines is then changed, and by the same attention to the time of repose, they will bear as readily and abundantly in winter as at any other season.

J. A. OHLENDORFF,
President of the Horticultural Society and Director of the Botanical Garden at Hamburgh.

INSECTS, BLIGHT, ROTTING, &c.

About the 8th of June, while the vine is in flower, and throwing its peculiar and delicious perfume around, its great enemy, the *rose-bug*, makes its appearance and feeds with voracity on

the sweet and delicate blossom. In a few days after their first appearance, thousands are seen carrying destruction throughout the vineyard. The best remedy I could ever devise, is to go among the vines early in the morning, before the sun has warmed them into activity, and they are then easily made to fall into the hand or on the ground, and may be crushed and destroyed. If rose bushes are near they will prefer to rest on them. A few mornings spent in this way will clear a vineyard. They are a short lived enemy.

I have observed in the city, that spiders and caterpillars are in some degree destructive to the green fruit. Spiders will get to the centre of the cluster and cause the fruit to fall in single grapes. The caterpillar attacks *the stem*, and the whole green cluster falls to the ground.

In cities, rats will sometimes come in droves in the night and destroy the ripe fruit—dogs and poultry will also eat them if they are allowed to get at them.

In the latter part of July, the blight or rot, takes place where vines are cultivated in fields, but it is seldom seen in cities. Great quantities of fruit will become brown and sometimes black and fall off. It is seen as much on the high as the low vines, and no less on fruit exposed to the sun, than in the shade. Some have ascribed this to the operation of the sun shining through drops of dew on the leaves, and operating as a lens. I have supposed it the result of bad trimming, or want of sufficient trimming; and that the exuberance of the vine, like the apple and peach tree, might thus disburden itself of a portion of its fruits. As an experiment, I discharged on the vines with a syringe soap suds, to which had been added lime and sulphur. I feared I should lose all my grapes, but to

my surprise I had a good crop notwithstanding and the remaining fruit was much better for this natural pruning.

Small worms will sometimes appear in a dense cluster in the under part of the leaf, and sometimes a large worm two or three inches long, like those on the vines and leaves of the potato and the tomato. These must be sought out and destroyed.

A writer in the Southern Agriculturist as a remedy for the rotting of the grapes, has practiced very high culture with success, on dry and unshaded arbors. He observes that his vines produce more and better grapes thus trained, and they are of a convenient height and width to drive a wagon under; and they are also out of the way of pilferers, unless they carry a ladder with them.

Mr. Clark, in the Southern Agriculturist, advises deep planting of the vine, and ascribes the rot or mildew to great rain after a drought, when the top roots receive rain to repletion. The vine has a propensity to form a tap root which protects it from the extremes of moisture and dryness. To favor the formation of a tap root deep planting is requisite. Mr. C. gives an instance of a Swiss cultivator who planted his vines in a ditch or trench more than three feet in depth, and after they were of good growth filled near the surface with poor earth, to retard the surface roots. No rot or mildew was ever known among his vines.

VINEYARD CULTURE.

When the vines are three years old they may be set in a vineyard, and at a proper distance to be trained on the supporters. These will vary according to the convenience or circumstances of the proprietor. In 1831, my vineyard of three hundred Isabella vines had become sufficiently large

to be permanently trained. The rows were eight feet apart, and vines eight feet in the rows. Common posts eight feet long were put two feet in the ground and eight feet apart, having a vine mid-way between the posts. My trellis was composed of lath or strips of sawed boards, nailed to the posts, the lower lath being one foot from the ground, and three above—the upper one being quite at the top of the posts. The extraordinary growth of the Isabella vines soon rendered them crowded and tangled. I trimmed the main branches along the lowest rail horizontally, and caused the branches about one foot apart to ascend vertically in a crooked or serpentine form to the top rail.—(See Fig. 6.)

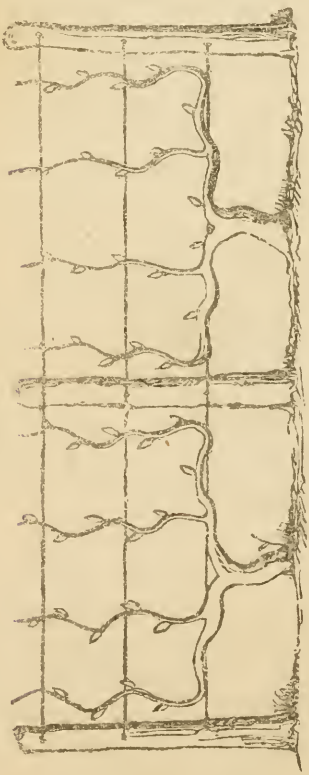


Fig. 6.

But I am diffident of giving advice about training large and vigorous Isabella vines, in open rows—they grow best and appear best trained on arched arbors eight or ten feet high The weight of fruit and vine requires something to *rest upon;* and if tied to a trellis or railing, they will ascend above the railing and be thrashed about by the wind and broken.

In March, 1832, I sold ten thousand cuttings of the Isabella Grape, to William Underhill, of Croton Point, near Sing Sing, New York, who now has a flourishing

vineyard there of seven acres, from which he sends his fruit to New York. His brother, Dr. R. T. Underhill, whose farm and vineyard adjoins, cultivates twenty acres in the Isabella and Catawba grapes, which are sent to New York. As Dr. Underhill is a very intelligent and successful cultivator, I shall notice him and his vineyard hereafter. —His vines are supported by posts from 6 to 12 feet apart in the rows—the vines are distant about 6 feet in the rows. The rows are mostly from 6 to 8 feet apart. The posts are about six feet above ground. The vines are trained on three ranges or trellisis on wires, the lower one being about a foot from the ground, and the upper one quite at the top. He had no regular system at the time of planting his first vineyard; but the public will hereafter be favored with the results of his experience. The wire as also each end of the upright posts, had been immersed in coal tar, probably warm, as a preservation from rust or rot. The wires were wound around nails, driven into the posts within an inch of the head. This makes a very strong and durable support to the vines, and the appearance is neat and good. A system of very close pruning gives the vines plenty of sun and air, and thus the best fruit is obtained.

I have in a few instances trained vines upon large apple trees, and they ran quite to the top, and the grapes were abundant among the apples; but this mode is not to be recommended. The fruit was bad, and trimming quite impracticable, In the city of Brooklyn, among high buildings, with proper pruning, the Isabella Vines never fail to produce abundantly *every season*. This is extraordinary and unlike fruit trees in general, and it may truly be said that this delightful vine every season "cheereth the heart of millions."

Change of earth at the roots.—Is has been recommended that on a fine day, as soon as the frost is out of the ground in the spring, the earth be removed from the roots of old vines and a solution of alum and clay be dissolved in water and poured upon the roots, and the earth changed about the roots. I do not mean to recommend these experiments; but where old vines are from any cause declining, they may be benefitted

Supports and distances.—I think it will be found that the plan adopted by Mr. Bonsall, [see page 52] and subsequently by Dr. Underhill [see page 47] of supporting vines on *stout wires,* and on posts *ten feet apart,* is the most economical. Mr. B. uses wire No. 11, softened. Dr. U. gives his wire a coating of coal tar. One part of this economy is, that the tendrils of the vine in some measure work their own support around the wire. Three lines of wire are turned around nails driven in the posts—the lower line should be about a foot from the ground. Wire of No. 11 to 15 may be recommended, which will cost from $8 to $9 per 100 pounds. Each pound would probably measure from 20 to 24 feet. Black varnish would make a good coating for the wire.

AMERICAN GRAPES AND VINEYARDS.

Scuppernong Grape.—We place this as the very first of American grapes yet known Its productiveness is almost beyond credibility, as will be seen, and its qualities for the table and for wine are esteemed very great. It is sometimes called the Hickman grape, after the man who first brought it from the Scuppernong river into Newbern, North Carolina, from whence it soon acquired favor among the farmers and gardners, in that vicinity.

Captain William Burlingham, has cultivated four acres for eighteen years, and has wine of great age. A single vine has produced him a ton of fruit, and made eight barrels of wine of the best quality. It grows on sandy land which is fit for nothing else, and the vine has proved good after sixteen years. The grape is of a white color, but there is an inferior grape called Scuppernong, which is of a purple color. It is dicœcious, which is one reason for its not succeeding with those who do not procure the kindred vine Mr. James Blount, of the Scuppernong river, diffused a knowledge of this excellent grape in some well written papers, published in North Carolina. It is a singular fact that in N. Carolina the vines are *never trimmed*, and this fact may lead to interesting experiments to know what effect this practice, which is every where considered very essential in vine culture, might have on this vine.

In making Scuppernong wine, one sixth of its quantity of proof spirits is added. Sugar or water is said to spoil it.

It is said to be very difficult, if not impossible, to propagate this vine by cuttings It must be done by roots, or by layers, in the manner herein described.

Isabella Grape.—Next to the Scuppernong we may be allowed to rank the Isabella, which appears to grow well in all parts of our extensive country, although probably in its greatest excellence on Long Island. The fruit is dark purple, of large size, fine down, and pleasant perfume—the form oval—clusters loose and long, two seeds, pulp very juicy, with thin red crust, near the skin—the skin very thin. It is found to improve much with cultivation. It is a very great bearer, and if al-

lowed, the vines will cover a large space. Good for the table and for wine. It is cultivated from Boston to Florida. It is a *polygamous* plant.

Catawba.—As third in rank, we would name the Catawba. This is one of the best native American grapes both for the table, and for wine. Berries of a pale red or lilac color—bunches large with shoulders thick set—slight musty taste, and delicate flavor—thin skin, and very little pulp. It grows well in the vicinity of New York, and is a good bearer. The late Mr. Adlum, regarded it as his best wine grape. It ripens the last of September. Mr. Longworth, who is a distinguished cultivator of grapes in Ohio, says—"The Catawba is superior as a wine and table grape to the Isabella and matures its fruit better, though a less abundant bearer. We have native grapes in most of our states, could a selection be made, which would leave us little cause to regret that foreign grapes succeed so badly with us."

Cape or Alexander Grape.—This is the grape much used in the Vevay, and other western vineyards.

Norton's Seedling.—Dr. Norton, of Virginia, obtained this grape from the seed of the Bland, fructified with pollen of the Meünier, or Miller's Burgundy.

Native Grape.—A correspondent of the Boston Cultivator, speaks in high terms of a seedling grape purchased of G. B. Emerson, Esq., of Boston. The size of the berry is said to be about that of an ounce bullet, or of the sweet water grape. The flavor is rich, much more so than the Isabella. It has no pulp or foxy taste. It is not likely to be injured by frost, as it puts out about ten days later than the Isabella, and ripens a month earlier. It

was in eating the latter part of August. The vine is perfectly hardy. If this description is correct, this grape is well worthy of being more known and cultivated. Its early ripening is greatly in its favor as a northern grape. I would particularly recommend it to our amateur and experimental cultivators.

Herbemont's Madeira, Warrenton Grape.—This grape is raised near Baltimore. It had foreign origin and is a great bearer. In the state of Mississippi wine is made of this grape; and in that state they have a very fine grape, called the Jack Grape.

Orwigsburgh Grape.—A fine round grape, discovered by Dr. Hulin, of Philadelphia. It is of small size—very hardy—said to be hybrid.

A new grape has been announced in the papers as native of Italy, and taken from *under the snow* in Savoy and Piedmont.—Some of the wine of these vines was brought to New York in 1845, by Mr. Lester, Consul at Geneva, and a quantity of the vines sold by Wm. H. Franklin & Son. The wine is stated to be of the very best, and the grape would probably succeed well in our climate.

Great Productiveness.—A vine was raised by Mr. Willis, of Maryland, which in 1832, had 25,000 bunches of grapes; and in the following year, 1833, his neighbours, C. M. Bromwell, and R. Monkland, certify to have counted 54,490 bunches, omitting small and young bunches, which would have added at least 3,000 more.

Woodson Grape.—A native of Prince Edward County, Virginia, color red, berry of a medium size between the Chicken and the large Fox—the bunches very compact, and weighing about four ounces—free from pulp, and of a rich flavor—one small seed---good for the table and for wine.

Cunningham Grape.---A native of Prince Edward County, Virginia.---Black or deep purple---bunches ragged and irregular-- free from pulp and rich in saccharine matter---the skin thick and leathery---one small seed---good for the table and for wine.

Boston, Mass.---Great quantities of grapes are raised in and about Boston, but we do not know of any large vineyards for wine or for the Market.---Men of wealth raise foreign varieties in hot houses, and the finest grapes I have ever seen were at the Horticultural exhibitions in that city.

Nantucket, Mass.---Vines are said to be cultivated in Nantucket in considerable quantities.

Louisville, Kentucky.---Mr John L. Martin, has a vineyard of 20 acres of Catawba grapes. The vines are in rows, at 8 and 10 feet apart between the rows.

Vineyard at Glasgow, Kentucky.---This vineyard was planted by James G. Hicks and a Swiss Gentleman in 1814.---It comprises five acres. The grapes first planted were Madeira, Claret, Cape, Burgundy and Champaign.---The Claret and Cape thrive well, and the others were abandoned.---Mr. H. is convinced that a vineyard well cultivated will yield from 300 to 500 gallons per acre, and that one man can with ease cultivate five acres.

At Germantown, Penn.—Mr. Edward H. Bonsall, has a vineyard commenced in 1825, which in 1830, had 3,500 vines. Mr. B. prefers the Catawba, the Black Madeira, and the Isabella grapes, and makes a quantity of good wine. Mr. B. planted his vineyard in rows *eight* feet apart, and vines *five* feet in the rows. His trellis is of No. 11 iron wire made soft, and sustained on chesnut posts seven feet long set in the ground ten feet apart—three lines of wire between the ground and the top

of the post The wire is drawn tight, and turned around nails in the posts. The wire trellis saves part of the labor of tying, as the tendrils will naturally twine themselves around it. This trellis also admits freely the sun and air. Mr. B. allows each vine, after it attains five years of age, to bear fifty clusters on an average. When fresh pruned, his vines are not more than four feet high at any age.

At Galliopolis, Ohio, good wine is made.

In Maryland and Virginia, the Bland grape grows abundantly. It passes in Virginia under the name of the Virginia Muscadel. It ripens in Philadelphia in the first week of October, and hangs on the vines till December.

Brinkleyville, N. C.—S. Weller, P. M., in Nov., 1844, informed the Editor of the Cultivator, that among his vines the Scuppernong ranks first south of lat. 37 1-2, but of no superior excellence north of that. Norton's Virginia Seedling, good every where as far as heard.—Weller's Halifax, Vine Arbor, &c.—The Catawba, Isabella, Herbemonts, Madeira, are cultivated. Mr. W. says—"I plant all but the scuppernong 10 feet each way; but for that 30 feet each way is full near. At 40 feet, well managed, they will form a canopy over head in 10 or 12 years. Some branches of mine at that age extend 60 feet each way.

VARIOUS USES OF THE VINE.

Every part of the crop of the vineyard is of use to men and animals, and nothing need be lost or wasted. The leaves and green prunings are eaten by horses, cows, and sheep. The leaves should never be taken from the vine, but when they fall

they may be gathered and mingled with hay, to which they impart a very grateful flavor and odour. If left on the ground or ploughed under, they constitute the best manure for the vines.

Many healing virtues have been ascribed to the sap of the vine, which runs very profusely if a twig is cut too late in the season.

Fresh Isabella grapes are much seen on the tables in New York and Brooklyn, during the New Year Holidays. They are preserved in clusters, in layers of cotton, or in dried saw-dust or bran.

Intemperance restrained.—No truth is better established than the fact that intemperance and drunkenness are much less known in wine countries, than in other parts where the vine is not cultivated. This single circumstance is of immeasurable importance in these United States, where it is abundantly proved that alcoholic liquors, are the cause of more bloodshed, vice, misery, and crime, than all the other causes united. Whatever has a tendency to check or abridge this national evil, most surely engage the best exertions of the philanthropist and statesman. An American returned from Europe, says—"I have passed three years in France, where I never saw a drunken Frenchman. Eighteen months in Italy, and in that time not an Italian intoxicated. Nearly two years in Switzerland, of which I cannot say the same, but I can safely aver, that during that period I did not see twenty drunken men, and whenever my feelings were pained at beholding a prostration so sad over better principles, it was invariably on an occasion of extraordinary festivity,

'The Swiss are by no means an intemperate people, nor is it, so far as I have seen, the character of any wine growing country. In the argu-

ments, therefore, which may fairly be urged in favor of the cultivation of the vine, a strongly inciting motive addresses our personal interest, and invites us to adopt a system by which our revenues will be increased, and agriculture improved. There is yet a more important light in which it appeals to our public spirit, and our better principles as a Christian community—the *moral improvement of society*. That we are not indifferent to this important view of it, is manifest from the numerous philanthropic institutions, both public and private, with which our country abounds. * * *

"Societies for the promotion of that first of virtues, temperance, are established throughout the land, but the principal sinew of their operations is unstrung. The cultivation of the vine will do more towards the furtherance of their object than a host of non-consuming resolutions."

These then are the opinions of one of our observing and intelligent countrymen,* and they correspond with the experience of others. The vine culture then appeals to our best feelings as patriots and as moralists. May we not therefore, hope that the whiskey of our western country will give way to the wine which may be produced in abundance every where. May we not confidently trust that every friend of temperance will view the grape as an important aid in the grand work of temperance and morality.

To make Raisins.-- Make a strong lye of wood ashes, put it in a vessel over the fire, and when at boiling heat plunge in a cluster and suffer it to wilt in the liquid, when it is drawn out, after becoming

* Observations on the character and culture of the European Vine, during a residence of five years in the Vine growing districts of France, Italy, and Switzerland.—By S. I. Fisher.

wrinkled. It is then drained and spread on hurdles to dry, where it remains until perfected.

In 1830 Mr. Walsh, of Lansingburgh, sent a sample of American Raisins to Mr. Fleet, Editor of the New York Farmer. They were described as having a pleasant flavor, and exhibiting good proof of what might be done.

Fresh and dried grapes are both favorable to health and frugality. Ripe grapes have been administered to whole regiments of troops in France who have been ravaged by fluxes and dysenteries. A cure was thus soon affected.

Syrups, cordials, and marmalades, are made of the grapes, and are a great delicacy and luxury.

The murk from the wine press is given as food to animals. It is also good for poultry. If given in a moist state, or in two great quantities, it is heating or inebriating.

If the murk is not otherwise used it makes an excellent manure, for the vines, mingled with other manures. The murk is also used in tanning leather, the operation being rapid, and giving a fine odour to the leather.

In the family of the Swiss peasant wine is essential, and supercedes the use of tea, coffee, or any other stimulating beverage. Inferior, therefore, in quality as their wines unquestionably are, they are sold at a price, given in many parts of the country a value to the lands which, but for the vine, would be a waste, unfit for cultivation

To keep Grapes Fresh.—Foreign grapes comes to us preserved in jars with dry saw dust; but they are tasteless and insipid, having an odour of the wood. We sometimes see American grapes of good flavor served on the tables at the holiday festivals of Christmas and New Year, but they are

rare. These have mostly been kept in layers of cotton, in a dry place. It is a matter of much importance, and we hope various experiments will be made to discover the proper mode of preserving fresh grapes. The Vine Dresser's Manual gives the following process, as being simple and certain. "Take a new cask, dry and strongly hooped, stand it in some spot where the temperature is always very nearly equal—cover the bottom with bran that has been well dried in the oven, and put it into the ripe, unblemished, perfect bunches, layer by layer, filling in with the bran before another layer is laid down. When filled, the head must be fastened down air-tight. Grapes thus put up, will keep so well that seven months after the vintage they will be unspecked, without mould or foreign flavor."

Some persons seal the ends of the stems of the cluster with sealing wax, and then put them in dried saw dust or dried bran, and then seal the pot—the pot itself is sometimes covered and sealed.

VISIT TO AN AMERICAN VINEYARD.

On the 4th of October, 1843, I received a written notice from T. B. Wakeman, Esq., Corresponding Secretary of the American Institute, informing me that I had been selected, together with S. Stevens, J. D. Ward, Henry Meigs, and others, a Committee of the Institute to visit the Vineyard of Dr. Underhill, at Croton Point, on the 8th of October.—The day proved to be very tempestuous and wet, and only Mr. Meigs and myself made the excursion. Dr. U. met us on board the steam-

boat, and we went to Sing Sing, and thence in Dr. U's. boat in 10 minutes to Croton Point, driven by a gale of wind.

The first thing which arrested our attention on landing, as we walked along the shore, was a long artificial pond, parallel to the shore, and only a rod or two distant, which had been made by taking out many thousand loads of *peat* or *muck*, which had been carried to the vineyard on the high ground in its natural state, and without making into compost. The pond had been thus made by excavation to the depth of ten feet, and had become a valuable fish pond. This peat bed formed a mine for enriching the land.

The next interesting object was the vineyard itself, comprizing about 20 acres, divided with cart paths at certain distances, with rows of vines 6 or 8 feet apart. We first saw the Catawba grapes, of a pale-red or brick color, and not quite ripe, but good and palatable. The vineyard was kept clean and neat by ploughing and hoeing between them. The posts are first immersed at both ends in coal tar—the lower end sufficient for the tar to reach above ground.—These posts are set in the ground 10 feet apart, the trellis is of stout wire, which also had been immersed in coal tar, and three lines of this wire attached to each post—one line about a foot from the ground, another at the top, and another mid-way. This was the style of the entire vineyard, a great part of which is on the side of a hill facing the south, and the soil a light sandy. That part which is on the top of the hill, being sheltered on all sides by high trees produces the best and earliest fruit.

We passed through the vineyard, which appeared loaded with the deep purple fruit, of which

more than two thousand pounds had been sent to New York Market the day previous. It was such a sight as probably was not to be seen elsewhere in America.

Dr. U. is also a cultivator of Newtown Pippins and Peaches; but my present object is to speak of grapes only. The utmost system and good management seemed to prevail throughout the whole place.

After partaking of the Doctor's hospitality, we returned to the city with as many fine grapes as we could carry.

CONVERSATIONS ON GRAPES.

At the room of the American Institute, in the City of New York, are held Semi-monthly "Farmer's Clubs" for conversation on subjects of Agriculture, and matters of science therewith connected. In the months of March and April, 1846, the subject of grapes was introduced, which we find thus reported in the New York Farmer and Mechanic.

Farmer's Club.---Dr. Underhill said:---"I am asked to speak on the grape question---but I cannot in the space of an hour give a proper view of it. I will, therefore, but sketch! The grape is immortalized in history, poetry, in scripture, in painting. The rich architecture of antiquity, the frescoes, vases, and other beautiful works are entwined with the vine and its precious clusters. The tendrils of the grape have enwrapped the heart of man in every country where it grows. The grape is so delicious, so salutary---diluting the blood, and causing it to flow easily through the

veins---and there is nothing equal to it for old age. In this country its use will grow, will increase until its consumption will be prodigious. It will supplant some of the articles which destroy men, and establish the cheerful body in place of the bloated, diseased systems of the intemperate. No disease of the liver---no dyspepsia are found among those who freely eat the grape. This remarkable fact is stated in reference to the vineyard portions of France. Persons who are sickly in grape countries, are made well when grapes are ripe. And this result is familiarly called the *Grape Cure!* In this country our attention has been long misdirected. We have spent years and sums of money on imported vines. We have proved the fallacy of all this. The foreign grape vine will not flourish in our open air. It only thrives under glass! I suppose that millions of dollars have been lost on these foreign vines during the past century. Climate has settled that question. Our extremes of cold and heat are incompatible with the character of the foreign vine. Time will show that our native stock of grapes will, by cultivation, gradually improve in quality. It is with them, as with animals, great amelioration follows care and proper knowledge. I spent some thousands of dollars on the foreign grape vines, without success.---We want to supply our 20 millions of people with fine grapes! In 1830, France produced fourteen thousand million pounds of grapes. Of which, were consumed on the tables and exported in the form of raisins, &c., two thousand million of pounds! Are you afraid that our market will be overstocked from the few vineyards which we have?

There are many books on the culture of the vine, but their doctrines are generally not at all ap-

plicable to our country. Europe has the moisture from the ocean---we have the dry winds blowing over our continent. More heat penetrates our ground in one of our hot, bright days, than England has in a week. The books of Europe are an honor and an ornament to the world---but they lead us from the truth frequently---such is the great difference of the climates of Europe and America. We must here select our best native grapes----there are many---of which we have now proved the Isabella and Catawba to be excellent. Plant the vines deep, on dry soil, where there are no springs of water---on slaty, calcareous, or other soils---but the drier they are, the better for the grape. A soil of brick clay will not do. The roots must be deep. to avoid our severe droughts Plough the ground exceedingly deep before you plant your vineyard. I have found that in seven years' culture, the savage musk of my Isabella has vanished. Its character is greatly changed for the better. Its pulp is almost gone; its seeds are less.

The culture of the vine has one great and eminent advantage over all other crops. If you plant it well, you will get an increasing crop for twenty-five years; and every year (with rare exceptions) for fifty and even seventy-five years, a good crop. Vines will sometimes live a hundred years !---and on our native vines you can have double the quantity which is obtained from a vine in Europe, where the vine has from ages of short pruning, become feeble, and attained its perfection. We do not let the vines bear one half as many grapes as they would if all were left on. Thin them out well. You will have better and richer fruit.

Mr. Hyde.---How do you prune your vines?

Dr. Underhill.---I do not spur them? I cut

away the old, and bring the new vine to bear. Nineteen out of twenty persons spur-prune their vines in this city---leaving two eyes on.

I keep my vines within about six feet in height for convenience in gathering the clusters. All kinds of animal substances are good for manure for vines. Street manure is excellent for them. They ought not, however, to be stimulated too highly for then they become profuse in foliage, and the fruit mildews and rots. An even regular growth ought to be kept up. Rotten sods mixed with barn-yard manure is good for vines. Blood is good. Long Island might by means of the fish called Manhaden be made one beautiful vineyard! Take the fish in June, make a hole near the root with a crowbar, push down a fish- -there will be no smell from it, and it is an admirable manure for grape.

Composts of sea weed, black earth and cow and horse dung are good.

Judge Livingston---Have you tried wood ashes?

Dr. Underhill---That is excellent on sandy lands where their phosphates are leeched off by rains,

Prune in March! they bleed, and my bleeding vines present a magnificent spectacle in the rays of the sun. Slight bleeding does not hurt them a bit! The buds start the better for it. The Germans say, "If the juice runs out of the ends of the vines, we know we shall have a good crop!" In France and Italy, however, they do not prune so as to bleed their vines.

A Member----You would do a good thing if you would publish a set of plain, clear instructions for grape culture!

Dr. Underhill—That I have no time to do just yet, but am always happy to give any information

in my power at No. 400, Broadway, N. Y.; will be there most of the time till May.

At the next meeting the subject of grapes came up, and experiments were detailed of planting seeds to produce new articles. Mr. Longworth of Ohio, who raises largely for making wine, planted the seeds and obtained several varieties, but few of which were as good, and none better than the original. The grapes of Ohio are not as good as those in this vicinity, though of the same species. Their Isabella and Catawbas do not compare with ours; and the Ohio grape, which is the great favorite, is no better than our Isabella.

A curious statement of the sexes of plants was given The Scuppernong grape, which is very luxuriant and productive at the south, had been introduced here. The vine grew very well, but no grapes appeared, and on an investigation into the cause it was found to be the absence of the male plants, which grow spontaneously in North Carolina, in the woods and corners of fields, so as to preclude the necessity of planting it in the vineyard, the pollen being transported by the wind and by insects. This Scuppernong grape is a very good one; the vine grows like the banyan tree, forming roots and limbs interminably. One in North Carolina covers two and a half acres of ground. The stock vine is sometimes two feet in circumference.

Several years ago the wine of the Scuppernong grape was put on the table in this city with wines from Shirah in Persia, Constantinople, Italy, France and other places. It was thought better far than the famous Persian wine, and better than almost any of the varieties tried. A barrel of Scuppernong was lately put upon the lees of Madeira, and a few months after drawn off and pronounced excellent old Madeira, by good Judges.

The vine lives to a great age. The Northallerton vine in England lived 400 years; it died about 15 years since; it was two feet in circumference. On the continent, they also live to about the same age.

Some conversation was had upon the unsuccessful efforts to introduce the foreign grape into this country. A difference of opinion on its practicability seemed to exist; but it is pretty evident from experience that it will not succeed unless the vine is covered.

Dr. Underhill made some remarks upon the culture of the grape—of the necessity of dry soils for vineyards, in order to get the best produce and the best flavor. His remarks were somewhat lengthy and nearly of the same tenor as those made at the last meeting.

Some persons have taken off the leaves for the purpose of having their grapes ripen. This is a great mistake; it is taking away the very lungs which perfect the sap for ripening and flavoring the fruit. Inquiries were made concerning a small green fly which molests the grape. Not much knowledge of its effects was brought out; nevertheless, it was thought proper to take efficient means to destroy it while in the caterpillar state. The rose bug must also be kept off the grape vine. This insect comes from the ground. They are destroyed by ploughing the vineyards in the fall. Birds do not destroy grapes here, probably because the Isabella and Catawba are too large for their mouths.

At a meeting in April, the following conversation took place:

Col. Clark.—A gentleman planted the seeds of our native grapes, and obtained a variety of new

kinds of grapes. Why do we not find more varieties when the seeds are so distributed by birds, by animals, and by waters? Our wild Fox Grape retains its peculiar character; so does our Frost Grape. I have grafted on their stocks successfully.

Dr. Underhill.—Mr. Longworth, of Ohio, sowed large quantities of seed from the Isabella and Catawba grapes he had pressed for wine. He had several acres of such vines, but few of them proved to be as good, and none of them better than our Isabella and Catawba. It is said that these latter give better fruit here than they do at the South. The Ohio grape—the Norton's seedling—is said to be no better than our highly cultivated Isabella or Catawba. The Norton is a very compact, heavy cluster of round berries.

Mr. Meigs.—What do you say to the Scuppernong? A gentleman was here the other day who promised to give me a precise account of some of those vines, one of which spread to such an extent as to cover two and a half acres—under the shelter of which large parties of ladies and gentlemen met in *Fetes Champetres!*

Dr. Underhill.—Their growth is propagated by laying a branch in the ground, where it roots and thus continues to great extent, but that process constitutes a new vine! We find a difficulty in raising that grape for want of the *male vine.*

The Scuppernong grape is large, but there are seldom more than ten or twelve berries in a bunch. They shake the vine when using them for wine and those grapes that are ripe fall off. As to the Bland grape of Virginia, it is of a mahogany color, of a mild sweet taste, but it is without the aroma of the Isabella and Catawba.

Col. Clark.—The wild grape vines of the South, often attain from ten to twelve inches in diameter, and the branches run several hundred feet.

Mr. Meigs.—I have at the soirees of my learned and amiable friend, the late Dr. Mitchell, tasted of Scuppernong wine, of wine of the islands Chios, Tenedos, of those of Syria, Greece, Constantinople, and some which I had from Shiraz in Persia, and the opinion then was, that there was no great superiority in any of them over the Scuppernong.

Col. Clark.—I put the Scuppernong wine on the Lees of Madeira, and it was found to be excellent.

Judge Van Wyck.—The grape vine is long-lived, and some of them cover a great space. In England, they are long-lived ; the North Allerton vine measured about four feet in circumference, and was 150 feet long. Some vines on the continent reached 400 years of age, and were deemed young at 100 years. Theorists say that our climate is not suited to the European grape ; but the vine, as to its capability of being acclimated, is as flexible as its tendrils. We have not experimented much with them.

England made wine from her grapes ages ago. She afterwards imported the continental vines.—England now raises clusters of grapes occasionally, which weigh from ten to twelve pounds and more, and has grapes every month in the year. I have no doubt but that the European grapes will be introduced here. Many countries where the grape flourishes, have as much heat as we have here.

Dr. Underhill.—I have learned by my own experience the difficulty of naturalizing the European grape here, and we have suffered in the experiments, in this country, the loss of millions of dol-

lars in trying them. Grapes were raised in England in the twelfth century, and they made wine there ; but now all the fine grapes of England are under protection either of walls or of glass. So we raise them here to a considerable extent, and shall raise many more.—But that is not the object ; we want to cover our hills and our fields with them. The foreign vines planted in our open grounds are nearly all gone ; they could not bear the violent fluctuations of our climate.

I find the native vine flourishing among rocks where the materials of the rock washed down and the leaves fallen, accumulate—and in the alluvials along water courses, but that fruit is not good. Like some plants which are wholesome on dry soils and become poisonous in very wet situations. The wild vine at its first growth is tender and delicate, it seeks for support from a neighboring tree, perhaps a giant oak of ages ; it begins to entwine the tree, gradually ascends, reaches at last his lofty head and crowns him with his gold and purple clusters !

There is not a more profitable and certain crop than the grape—our Isabella will ripen where corn will ! and not fail once in ten years. It can be grown in favorable locations in Vermont, and probably in Canada. If placed among rocks, it is found that the rocks being heated by the sun during the day, keep that warmth during the night so as to prevent frost, and the vine loves the position.

Rank manure should never be applied to the vines. Mildew is one of the evils of that application. Never take off the leaves ! I have raised up some branches of foliage to cover my grapes more effectually in very hot days ! Let there be a free circulation of air among them !

Dr. Alex. H. Stevens.—Have your vines ever suffered from the small green fly?

Dr. Underhill.—I have never suffered so as to make it an object to destroy them.

Dr. Stevens.—Do those flies appear most numerous where there is the least circulatiou of air?

Dr. Underhill.—I cannot say that, but they always assail the most feeble vines. The mud Swallows took possession of a bank near my vineyard, and I found that they destroyed the flies. The young flies may be found on the under side of the leaves, they appear as plant lice before they get their wings.—And I must say that those who mean to have fruit must destroy all hurtful insects.

The Rosebug loves grapes—I have heretofore described the habits of this bug. In Hungary, vast flocks of blackbirds hover over vineyards—the men by firing guns keep them from settling, else they would soon destroy the whole crop of grapes. But in this country birds have not yet learned that grapes really are one of the good things of life.

Dr. Underhill.—Wild grapes love alluvial wet positions, but their flavor is not to be compared with those growing in dry soils. The wild grape has a thick skin, hard pulp, large seeds. By culture in dry situations, the skin and seeds become one half less thick and large, and the pulp almost disappears. The cranberry probably improves in all respects by the transfer from marsh to upland. As to grapes, their excellence is progressive with us. The Germans and Italians now say that our cultivated grapes are this year as good as the European.—Grapes will degenerate by neglected cultivation.

MAKING OF WINE.

In the year 1827, I planted about three hundred cuttings of the Isabella grape vine, at a small place in Brooklyn, Long Island. They were much injured by my tenants, who planted the ground with potatoes, and did not come into bearing until 1831. In the fall of that year I sent a quantity of the fruit to the market, and made about fifty gallons of wine, merely as an experiment, as I supposed myself to be the first who had attempted to make wine of this grape. The wine was of two kinds, made in October, 1831, and in the April following was put into bottles, and one bottle of each kind sent to about fifty persons in different parts, who were supposed to feel an interest in the matter. One kind was made of pure juice, to which two pounds of sugar to each gallon was added. The other kind was composed of one-third water to two-thirds juice—3 pounds of sugar to each gallon—one gallon of brandy to a cask of nineteen gallons. Some of this wine attained five years, and was pronounced very excellent.

I received from several persons to whom I had sent specimens of my wine, letters complimentary on my success, with remarks and advice relative to future experiments. The following from the late Zachariah Lewis, Esq., of Brooklyn, alludes to his possession of the original vine:

Brooklyn, April 20, 1832.

Col. Spooner,

Sir:—I have the pleasure to acknowledge the receipt of your circular, accompanied with the two bottles of Isabella Wine of your own manufacturing. You will please accept my thanks for your polite

attention, together with a bottle of Isabella Wine, made by myself in September, 1830.

Finding that a part of my grapes of that season, were not likely to ripen, and having read Adlum's account of making wine of "Immature Grapes," I concluded to try the experiment on a small scale. About one third of the grapes on each cluster had turned a dark purple, another third were red, and the remainder were still white and not half grown. I pursued the general process recommended in Mr. Adlum's Memoir, page 79; adopting, however, the mode of fermenting, suggested under the head of *Variations of the process*, page 81. You will perceive, by turning to Mr. Adlum's receipe, that I gave a larger proportion of sugar and water, than was used in either of your samples. No brandy was added, with the exception of a half pint, previously put into the five-gallon cask to cleanse and sweeten it.

The body of this wine is not equal to yours, but the flavor I think fine. Judging from your samples, and my own, I am persuaded, that the Isabella grape, whether partially or wholly ripe, will, after a few experiments, be found to make a wine of very superior quality and flavor.

Your account of the introduction of this grape into this region is undoubtedly correct. The first vine of this species, ever brought to this climate, was presented to Mrs. Isabella Gibbs; and her husband gave it the name of his wife. It has already spread to Pennsylvania, New Jersey, every part of New York, the New-England States, Michigan, and the Canadas; and the stump of the parent of all, to be found North of the Carolinas, is still visible in the garden now in my possession.

I am, Sir,

Very Respectfully,

Your's, &c.,

Z. LEWIS.

In the year 1832, my little vineyard bore very abundantly, and I made, in October of that year, eight barrels of wine. It was made in a variety of modes, to test the quality of the grape, and did not all prove good; but far the greater part was very excellent, and improved with age.

The grapes were gathered and thrown into tubs, without breaking the clusters, or separating the ripe from the unripe. They were broken by a common pounder, and merely cracking the skin is sufficient, and care should be taken that the seeds be not broken. The *murk or pomace*, is thrown into a large *vat*, which is covered with one or more blankets, to confine the heat and hasten fermentation. A portion is sometimes warmed and added to the mass, to give it a start. The pomace rises on the top, and the whole will continue to rise and ferment upwards for four or five days. When it begins to sink, the fine liquor, as clear as oil, may be drawn by a tap from near the bottom of the vat as long as it will run clear. This makes the *best wine*. The pomace is then pressed in any convenient mode, and all the juice extracted. The liquor is then called *must*, and in this state it is when any addition may be made, such as sugar or brandy. Nothing will incorporate well unless added before fermentation. I added in different casks from one to three pounds of sugar per gallon. If properly made, the wine does not require brandy, nor any other spirit, and is much better without it.

After the sugar is added in due proportion to the must, it is put into casks in a moderately cool place, and just filled to the open bung, and allowed while fermenting to overflow. It will work briskly for a month or more, and when it sinks in the cask, must be filled up so as to overflow. It is

best to *stop the fermentation* before it quite subsides, in order to preserve the fine aroma of the wine; and this is done by repeated *rackings* or drawing off into casks, previously smoked with sulphur, by burning in them rags dipped in melted brimstone. If any particnlar flavor is desired to be communicated *artificially*, it must be done while the must is in the early stages of fermentation. It will probably continue to ferment after this sulphuring and racking; and it may then be fined or clarified. Many substances may be employed in this Whites of eggs—milk and sand—fish-glue, sometimes called isinglass, may be stirred into the wine, which may be racked off in a week or ten days afterwards. At every racking a quantity of sediment is removed from the bottoms of the casks, and these rackings and fining s mustbe continued until the wine is perfectly pure. I commenced my wine making in October and considered it fit for bottling inthe March following.

Although I was successful in making some good wine, yet I do not flatter myself that I know much about it. An excellent little book published by Mr. Adlum, of Georgetown. in the District of Columbia, who was a great cultivator of grapes and manufacturer of wine, was my best guide in wine-making.

The wine is of a beautiful red color, and at first appears sweet, but will gradually become sharper, and still retain the delightful flavor, as well as odour of the grape. It diffuses an inward glow, cheering and healthful.

I ascertained that a measured bushel of grapes, as they came from the vine in clusters, weighed thirty eight pounds. I also weighed 100 pounds of grapes and crushed them, and obtained a little

more than nine gallons of juice. It thus requires eleven or twelve pounds of grapes for each gallon of wine.

Mr. Longworth, says:—I have wine of my own manufacture, now six years old, the pure juice of the grape.

In wine countries the new juice is often boiled down till its fermenting quality is destroyed, and its saccharine quality nearly doubled.

Brandy is added to stop fermentation.

Mr. N. Longworth, of Delhi, in Ohio, obtained a premium in 1833 for a rich light wine from the Catawba grape. He also produced a good red wine from a native grape. Mr. L. manufactured 105 gallons of wine from one fourteenth part of an acre.

Scuppernong.—It is stated that Capt. Burlingham, near Louisburgh, in North Carolina, about the year 1831, cultivated the Scuppernong grape with success. From twelve vines he made five hundred gallons of wine, worth one dollar per gallon. One barrel of *must*, made of the first gleanings, required 21 pounds of sugar to make it bear an egg; while another barrel of later grapes required but seven pounds.

Wine in Georgia.—Col. Alexander, of Jasper County, Georgia, had a vineyard of seven acres from which he made between one and two thousand gallons of wine, which he sold from $1 50 to $2 00 per gallon He cultivates eight varieties of the grape. His soil is a rich red clay.

A harsh grape to the taste will often produce very good wine. The wild grapes of the Swamps on Long Island, have been successfully used for wine.

At Vevay, they have had as high as 500 gallons

of wine per acre, but more often only 150, and 260 is considered a good crop.

Women in grape countries do about one half the labor.

A writer in the National Intelligencer, says—"About 1,600,000 arpents, or 1,350,400 acres are in France employed in the culture of the vine. The value of the annual product is about 100,808,000 dollars, at about 20 cents per gallon.

Wine.—That wine is the strongest and has most flavor in which both the skins and stones are bruised and fermented.

Mr. Jefferson, in a letter to Maj. Adlum, dated April 20, 1810, says—"Be assured that there is never one atom of anything whatever put into any of the good wines made in France. I name that country because I can vouch the fact from the assurance to myself of the vignerons of all the best wine cantons of that country which I visited myself."

One bushel of grapes yielded Maj. Adlum three gallons of wine.

Many farmers near Fayetteville, North Carolina, have for many years drank excellent wine of their own raising from native grapes.

TO MAKE WINE OF IMMATURE GRAPES.

It oftens happens that the grapes on the Isabella and Catawba vines do not fully ripen, and are entirely unfit for eating. In such cases they may be converted into very excellent wine. The late Mr. Adlum, of Georgetown, sent the following letter to the Editor of the Southern Agriculturist, which is full of information on this matter:

From the Columbian Gazette.

We acknowledge the receipt of four bottles of wine from Major Adlum, accompanying his receipt in our paper of to-day for making wine from the wild grape, as a specimen of what our country can produce with trifling labor. How much better would it be for the health, comfort and morals of our farmers, if they would bestow more attention upon the manufacture of an article which requires so little trouble and expense, and which is so infinitely superior to the poisonous trash of every description sold under the various names of spirits.

Domestic wine, Cider and Perry are not only more wholesome but cheaper than ardent spirits. We have every variety of soil and climate, and only need a little experience to rival the most famous wines of Madeira, France or Spain.

Mr. Editor.—As there is now growing over the whole face of our country, thousands of bushels of wild grapes, and as the *Fox-grape* is now nearly of the size it will come to when at maturity, I have written the accompanying *receipt*, which if you publish in your useful paper, it may be of some advantage to the public in general.

I have, according to this *receipt*, made wines of various qualities, some of which accompanies this ---it was sometimes at three or four years old equal to the best *Madeira*, according to the opinions of good judges, and none of it so bad as the low priced *rot gut* wines now imported, such as your *Malagas*, *Clarets*, &c., and it is as salubrious as the best of those imported. I have made wine of a *Fox-grape* that was pronounced by Mr. Jefferson and others, equal to the *Burgundy* of *Cham-*

bertin, one of the best wines in France, and it was at the time compared with *Burgundy* he had on his table, imported by himself when he was *President* of the *United States.* And last autumn I made a pipe of wine from the common small grape, growing spontaneously on the fences, stone-heaps and shrubs, by some called the *Chicken*, and by others the *Ciolyon grape ;* it is the *Vitis silvestris*, or blue bunch grape of *Bartram.* This wine was pronounced by several *ladies* and *gentlemen* recently from France, equal to and of the flavor of *Burgundy*, that cost in France *five francs* per bottle. I am, Sir,

Very Respectfully Yours. &c.

JOHN ADLUM.

Although wine may be made in any stage of their growth, and of any kind of grape, I would advise them to be left on the vines until they have attained their full size---and as the skin and stem of the unripe grape has no bad flavor, the grapes may be used in any stage of their growth.---Grapes of different sorts and sizes may be mixed together.

The following receipt is for ten gallons, which may be increased to any quantity by taking the fruit, &c., in proportion :

To a tub of the capacity of fifteen or twenty gallons, take forty pounds of immature grapes, (*no matter for the variety whether wild or cultivated,*) and bruise them in successive portions, by a pressure sufficient to burst the berries without breaking the seeds : four gallons of water are then to be poured into the vessel, and the contents are to be carefully stirre and squeezed by the hand until the whole of the juice and pulp are separated from

the solid matter. The materials are then to remain at rest for a period from six to twenty-four hours, when they are to be strained through a coarse bag, by as much force as can conveniently be applied to them---one gallon of fresh water may afterwards be passed through the *marc*, for the purpose of removing any soluble matter which may have remained behind Twenty-five pounds of good clean sugar, either brown or white, are now to be dissolved in the juice *thus procured*, and the total bulk of the fluid made up with water, to the amount of ten gallons and a half.

The liquor thus obtained is the artificial *must*, which is equivalent to the juice of the grape. It is now to be introduced into a tub of sufficient capacity, over which a blanket or similar texture, covered by a board, is to be thrown, the vessel being placed in a temperature of from 60° to 80° of Fahrenheit's *Thermometer*. Here it may remain for twenty-four hours or two days, according to the symptoms of fermentation which it may show, and from this tub it may be drawn into casks to ferment. When in the cask it must be filled to the bung-hole, that the scum which arises from the bottom may be thrown out as the fermentation proceeds, and the bulk of the liquor in the cask diminishes, the superfluous portion of the *must*, (*viz.* the half gal.) which was made for the express purpose, must be poured in so as to keep the liquor still near the *bung hole*. When the fermentation becomes a little languid, as may be known by the dimunition of the hissing noise, the bung is to be driven in and a hole bored by its side, into which a wooden peg is to be fitted---this peg may be drawn once in two or three days, for a few minutes, to let the air that has been generated escape---and in about three

weeks or a month it may be drove in permanently tight.

The wine thus made must be put into a cool cellar, as it is no longer necessary to promote the fermentation process. If the operator is not inclined to bestow any further labor or expense, he may examine it in some clear cold day in January or February, or the beginning of March, when if it is fine and bright, as it frequently will be, it may be bottled without further precautions. To insure its fineness, however it is the better practice to rack or decant it towards the end of December into a fresh cask (fumigated with sulphur) so as to clear it of its lees. At this time also, the operator will be able to determine whether it is not too sweet for his views. In this case, instead of racking it, &c , he will stir up the lees so as to renew the fermenting process, taking care also to increase the temperature at the same time. At whatever time the wine is racked it ought to be fined. Sometimes it may be necessary to rack it a second time into a fresh cask,(*if the wine is not perfectly bright*,) and again repeat the operation of fining. All these removals should be made in clear, dry, and if possible, in cold weather. In any case it must be bottled during the month of *March*.

The wine thus produced will generally be brisk, and similar in its qualities to the wines of *Champaign*, with the strength of the best *Sicily*.

Circumstances which cannot always be controled, will sometimes cause it to be sweet and still, and at others to be dry.

Variation of the process described above.---The skin of the grape or the whole *marc*, as well as the juice may be fermented together in the vat or tub along with the sugar in the first stage of the pro-

cess. The fermentation will thus be more rapid. and the wine prove stronger and less sweet, but it will acquire more flavor.

Cream of tartar, or which is preferable, *crude tartar*, may be added to the *must* in the proportion of six ounces to ten gallons or one pound to a barrel.

If it is wished to have a very sweet as well as brisk wine, the sugar may be increased five pounds for every ten gallons. And in this case if the fruit is increased to fifty pounds instead of forty, or in that proportion, and keep it two years in the cask, *it will assume a Madeira flavor, and it will be a pleasanter and better wine than most Madeira now imported.* If the wine is intended to be less sweet, *that is*, five pounds less of sugar to the ten gallons, if it is not bottled in *March*, it will, after the month of August or September, be a better wine than the *French Madeira* now imported. But in all the above processes if it is bottled in March, it will seven times out of ten sparkle like *Champaign.* And all sparkling wines to drink them in perfection ought to be drank in from twelve to eighteen months after it is made.

To insure briskness without excessive sweetness, the fruit must be increased to fifty pounds, when the sugar is from 25 to 30 pounds. If, during the fermentation of wine thus formed, there should appear any danger of the sweetness vanishing altogether, it may be racked into a cask, fumigated with sulphur, and the fermentation checked by fining. Thus it will be speedily fit for use.

The best mode of fining wines that I am acquainted with is as follows, say for a cask of from thirty to thirty-four gallons :

Draw off a gallon or more wine, then take one quart of milk immediately from the cow after milking, and before any separation takes place, to which add two table spoonfuls of salt and one of the *sweet spirits of nitre*---mix it with the wine drawn, and pour it into your cask and stir it well, and leave the bung loose for about twelve hours, and then drive it tight---and in from eight to twelve days it will be beautifully fine and bright, and is ready to bottle.

If the fermentation is complete, and all the sweet principle turned to *alcohol*, fining is unnecessary, as the wine will be perfectly fine and bright---and it is only to be fined when there is small particles floating in it, or cloudy ; and when all the sediment, mucilage and other impurities are got clear of, either by fermentation or fining, it will then keep for an age or ages---no matter for its strength, without it should extract some fermenting principle out of the cask.

Ohio Wine.---From an elaborate Report, presented to the Horticultural Society of Cincinnati by Dr. Flagg, it appears that there are seventy-eight vineyards in Hamilton Co., Ohio, of which more than fifty are cultivated by Germans. About two hundred acres are planted with the grape, of which one hundred are in bearing order.

The Cincinnati Gazette extracts the following facts from the Report :

The amount of wine made last year exceeded 22,000 gallons, notwithstanding more than one-half the crop was cut off by the frost and rot, and many of the vineyards are but just coming into fruit. The average yield of wine per acre, for five years in succession, is estimated at 450 to 500 gallons, which sells quick at $1 to $1,50 per gallon. There

will be at least one hundred more put down to grapes this spring, making three hundred in all, in Hamilton county. There are also, eight or ten vineyards in Kentucky, within a dozen miles of this city. The varieties of grape generally cultivated are the Catawba and the Cape ; the latter is called at the East, the Schuylkill Muscadel, and furnishes the red wine. That from the Catawba is white, and sells the highest. The Isabella, so popular at the East, is universally thrown up here, as unsuited to the climate.

—

N. Longworth, Esq., has experimented extensively in the culture of American grapes. His opinions are, therefore, entitled to attention We give an extract from an address recently delivered :

"I have found no foreign grape that will pay the expense of open culture in our climate. Native vines, planted on ground with no other preparation than deep ploughing, have thus far succeeded better than those on steep side-hills, where the ground was prepared with great expense. Those parts of my vineyard fully exposed to the north have often ripened their fruit better than those with a southern exposure. Some of the finest vines of France are made in a northern latitude, and on hills fully exposed to the north.

"Others are deterred from the cultivation of the vine, from an impression that great skill is necessary. The vine requires less science in its cultivation than the peach or apple tree ; and the manufacture of wine is a more simple process than that of cider. Cleanliness and careful exclusion of unripe and decayed fruit are the great requisites. Wines may be improved after they are completed,

by a mixture of the strong with the weak, the dry with the sweet, the flavorless with that possessing a high flavor; but this is the province of the wine-merchant.

"Again, it is said we cannot succeed with the manufacture of wine, because the addition of sugar is necessary to our grapes to give them the requisite sweetness. I have wine of my own manufacture, now six years old, the pure juice of the grape. But in all wine countries, unless it be in those where light hard wines are made, sugar is added, or its equivalent. In Madeira, Xeres, Oporto, various methods are resorted to. The grapes are suffered to hang till a bunch of raisins can be plucked—or a portion of the must is boiled down, till its fermenting quality is destroyed, and its saccharine nearly doubled, or a portion of the unfermented must is mixed with such a quantity of brandy as to stop the process of fermentation, and these are added to the must or wine. After the wine is perfected, from five to twelve per cent. of brandy is added. Even in the sunny clime of Italy, to enable their wine to keep without the addition of sugar, they boil the must, and the wine so made is called "Vino Cotto." In Germany and France, sugar is frequently added. But in all these cases, the fermentation is checked before its completion, and the leaven precipitated by sulphuring and frequent racking. From experience, I am perfectly satisfied that it is immaterial whether the saccharine principle be in the grape or added to the must in the form of sugar.

"The reason so many have failed in the manufacture of domestic wine, is that, instead of making American wine, they have, by the process of manufacture, attempted to produce an imitation of popular foreign wines.

"The Schuylkill, Muscadel or Cape grape, the Isabella or Catawba, are the American grapes most in use for the manufacture of wine. The first by age becomes a good wine, The second will make a rich, sweet wine, by the process of manufacture necessary to accomplish this object, but it does not improve by age. From the Catawba, Major Adlum makes a rich sweet wine. The wine which I manufacture from this grape is a light, dry wine, resembling those of the Rhine, and will successfully compete with any of them, but they are wines now for the first time coming in use among us, and command a high price.

"I have two other native grapes under cultivation, from which I have yet made only a few quarts of wine of great promise. They are also first-rate table grapes The best wine of American manufacture that I have seen resembling Madeira, is made by a French gentleman of great intelligence, in South Carolina, Mr. Herbemont. He sent me a sample. Itis made from a grape called the Warren, or Herbemont's Madeira. I obtained this grape from him four years since, and do not hesitate to pronounce it an American grape, common in North Carolina, and to be found as far west as Missouri. As a table grape, it is equal to many imported varieties.

RECEIPT FOR MAKING CURRANT WINE.

Gather your currants when full ripe, which will commonly be about the middle of July; break them well in a tub or vat, (some have a mill constructed for the purpose, consisting of a hopper, fixed upon two lignum vitæ rollers) press and mea-

sure your juice, add two-thirds water, and to each gallon of that mixture, (i. e. juice and water) put three pounds of muscovado sugar (the cleaner and drier the better; very coarse sugar, first clarified, will do equally well) stir it well, till the sugar is quite dissolved, and then turn it up. If you can possibly prevent it, let not your juice stand over night, as it should not ferment before mixture.

Observe that your casks be sweet and clean, and such as never had either beer or cider in them, and, if new, let them be first well seasoned.

Do not fill your casks too full, otherwise they will work out of the bung. which is by no means good for the wine; rather make a proportionable quantity over and above, that, after drawing off the wine, you may have a sufficiency to fill up the casks.

Lay the bung lightly on the hole, to prevent the flies, &c. from creeping in. In three weeks or a month after making, the bung-hole may be stopped up, leaving only the vent hole open till it has fully done working, which generally is about the latter end of October. It may then be racked off into other clean casks if you please; but experience seems to favor the letting the wine stand on the lees till spring, as it thereby attains a stronger body, and is by that means in a great measure divested of that sweet, luscious taste, peculiar to new made wine; nay. if it is not wanted for present consumption, it may without any damage, stand two years on the lees.

When you draw off the wine, bore a hole, an inch, at least, above the tap hole, a little to the side of it, that it may run clear off the lees. The lees may either be distilled, which will yield a fine spirit, or filtered through a proper cloth, and returned

again into the cask. Some put in spirit, but I think it not advisable.

Do not suffer yourself to be prevailed on to add more than one third of juice, as above prescribed, in hopes that the wine may be richer, for that would render it infallibly hard and unpleasant; nor yet a greater proportion of sugar, as it would certainly deprive it of its pure vinous taste.

By this management you may have wine, letting it have a proper age, equal to Maderia, at least superior to most wines commonly imported, and for much less money.

In regard to the quantity of wine intended to be made, take this example, remembering that twelve pounds of sugar are equal to a gallon of liquid.

For instance, suppose you intend to make thirty gallons only, then there must be,

8 gals. of juice,	24 gls. mixture.
16 of water,	3 multiplied by
—	—
24 gals. mixture,	12)72 lb. sugar,
6 gs. produc'd by sugar	—
—	equal to 6 gals. of liquid
30 gallons.	

And so proportionably for any quantity you please to make.

The common cider presses, if thoroughly clean, will do well in making large quantities: the small hand-screw press is most convenient for such as make less.

N. B.—An extraordinary good spirit for medicinal and other uses, may be distilled from currant juice, by adding a quart of molasses to a gallon of juice, to give it a proper fermentation.

* *Note.*—On some of the borders of a garden, the size of common country gardens, currants enough are gathered, to make, annually, 25 or 30 gallons. An acre well managed, would probably make at least 500 gallons.

Currant Wine.—Doctor Dyer, in the Spring of 1818, planted a currant vineyard of forty acres about a mile and a half from Providence, Rhode Island.—In 1821, he sent wine to the editor of the N. Y. National Advocate, and expressed confidence that in a few years he should be able to make it produce two hundred pipes of wine per annum. It was principally sold at Charleston, S. C., and in the West Indies.

GRAPES CULTIVATED NEAR NEW-YORK.

At the Fair of the Amer. Institute in New-York October, 1845, a great variety of fine grapes were exhibited. From the Report made by Thomas Bridgeman, Chairman of the Committee on Fruits and Flowers, I gather the following facts:

From R. L. Pell, (M. Cunningham, Gardener,) six varieties of grapes, *raised without artificial heat,* viz. Black Hamburgh, St. Peters, White Sweet Water, Flame-colored Tokay, Isabella and Catawba.

From Roswell Colt, Paterson, New Jersey, three varieties of house grapes, viz: Black Hamburgh, Black Damascus, and Royal Muscat; and four varieties raised *without* artificial heat, viz. Black Muscadine, Hamburgh, St. Peters, and White Muscadel.

From Thomas Noyes, Stonington, Connecticut, three varieties of grapes, viz. Red Frontignac, Morocco, and Frontinel.

In conclusion the Chairman observes—"Our list of Fruit, it may be observed, embraces a description of several of the best varieties of foreign grapes, also two varieties of the seedlings, raised

without the aid of artificial heat, which proves that our climate is capable of fully maturing this delicious and valuable fruit. Like France, Italy, and Spain, we shall have our "vine-covered hills," and thus be rendered independent of other nations for a requisite supply of healthful and refreshing vines."

Flushing has long been celebrated for its extensive Nurseries, and green-houses for the sale of trees, plants, flowers, and grape vines of every known description. The oldest establishment was that of the late William Prince, who is succeeded by his son William R. Prince, who now continues the business. The father and son are the authors of an excellent scientific and practical Treatise on the Vine, published in 1830. A great variety of Vines, adapted to the climates of our country, are sold by Mr. Prince.

Messrs. Valk, in the same Village, have extensive grape-houses and green-houses, which are described as being very superior, and affording a model for others.

Messrs. Parsons, Winter & Co., King and Ripley, and E. Higgins, are all extensively engaged in the Nursery business, and are probably all cultivators of grape vines for the market. These establishments are an honor to the country.

From the Vine Dresser's Manual, by Thiebaut de Berneaud.

DOMESTIC USES OF THE VINE.

To Dry Raisins.—This excellent mode of preserving a delicious fruit, has been in use from time immemorial. The Grecians twisted the foot-stalk and left the bunch on the vine until it withered,

when it was gathered and dried in the shade. Raisins, with them, formed quite a branch of commerce.

The small town of Roquevaire, (Bouches-du-Rhone) having gained an established reputation by its raisins, I shall give the receipe there practised. The Calabrians prepare them well also, but far less successfully than the inhabitants of Roquevaire. In that small town they only dry white grapes. They select the largest, pulpiest kinds, with few stones, and thinly scattered on the bunch. These are culled dead-ripe. Every berry with the least speck of rot upon it, is picked out and thrown away. A strong ley is then prepared from wood ashes, from 12 to 15° of strength for the salts of potash, ascertained by the ærometer. When on the point of boiling over, the bunches are plunged in and drawn out as soon as the berries are wrinkled. They are next put to drain ; after which they are spread on hurdles or reed mats, and kept in the sunshine from sunrise to sunset; during the night they are sheltered under awnings. Ten fair days are enough to dry them ; but if the weather is rainy it takes longer.

Roquevaire raisins are considered excellent; they have a slightly acidulous, agreeable taste. Calabrian raisins are blackish, which is a fault, but they are sweeter than those of Roquevaire. Spanish raisins are finer flavoured than either, but are generally prepared with two much negligence; they do not keep as well, and are mixed with very small dry berries. The sort of Syrian raisins caled Damascus, and which have a gilded hue, are highly prized for their exquisite flavor and property of keeping, without alteration, for two seasons. The Corinth raisins and currants from Zante and

Lipari, also enjoy great reputation; those of Lipari are often the worse for a little dirt or gravel; but those of Zante are unexceptionable. They are small, rich, with the flavour of violets, and but a single seed. They are prepared from white and red grapes indiscriminately.

Any family may prepare its own raisins, from perfectly ripe, handsome grapes; but before exposing them to the heat of the stove or sun, they should positively be bleached in the boiling ley. Many persons think boiling water sufficient; it is not: and the alcali of the ley, which has a great effect on fruits at the North, renders the skin tender. As it does not penetrate into the fruit, it does not injure the acid, which is the charm of the dried grape, without which it is cloying and dull.

Grape Syrup or Sugar.—*Parmentier* has left us quite a complele treatise on this subject, which should be consulted by all desirious of making the most of *grape syrup.*

This liquor is made by taking from the vat, the must of dead-ripe white grapes; if these cannot be had, the juice of black grapes expressed on purpose, and depriving it of its acids by mixing with it chalk, marble dust, gypsum or spent-ashes. If it is to be prepared as soon as expressed, it need not be sulphured; but stumming is indispensable to prevent fermentation, if there is to be a delay of only four and twenty hours. It must be sulphured two or three times, and each time be poured out to cool very quickly in shallow trays or dishes.—This syrup does not always need clarifying; if it should, white of eggs (in proportion to the quantity) must be whisked in the liquid before it is boiled. This syrup is an excellent resource to the farm-house.

In small vineyards, the wine of which is not very sugary, or when the grapes do not ripen as is desirable, this syrup, added to the vat, corrects that fault. When not boiled to so concentrated a strength, this syrup will, if put to ferment, make very pleasant cordial wines.

In domestic economy, it is an advantageous substitute for sugar; fine sweetmeats are made with it; the very best of marmalade, and very good brandy fruits, &c.

Grape Cordial.—Take dead-ripe black grapes, pick them and bottle them; the vessels only half filled with the fruit, must then be filled with plain brandy, corked, and stood in the sun for a fortnight. After which they must be emptied into a new, high-glazed, clean tureen, and the fruit must be mashed with the hand. The whole is then to be squeezed through a thick cloth, which must be wetted beforehand with brandy. The liquor thus strained, is returned into the bottles, with the addition of a little cinnamon and some peach-stones, cracked and thrown in, shells and all. The bottles are to be corked and stood in the sun another fortnight. The liquor must then be filtered through blotting paper; and it is a delightful drink, very cordial and stomachic, and becomes the better the longer it is bottled.

Marmalade.—With the must, various excellent marmalades are made; that of Montpelier enjoys the highest name; it is made from white grapes, boiled in the must to a clear jelly, and scented with citron and cedraty. The marmalade of L'Yonne and Loiret departments, though esteemed, is inferior to the former; it is a little more tart and mixed with stone and seed fruits.

The pears used for this purpose, are the *Cres-*

sane, *Bergamot*, the *Jargonelle*, the *Virgouleuse*, the winter *Bon Chretien*, the *Russeting*, or other firm kinds. Quinces are thought the most suitable mixture in marmalades ; apples and plumbs come next ; and lastly pumpkins, the rinds of green mangoes and melons, and surgary roots, such as carrots, parsnips, &c. These fruits must be selected very sound, cut small, and spread out on fair straw to mellow, before used. Table fruit is not fit for marmalade ; it is only fruit in an acerb state, that suit ; that which falls before ripening, is put aside for this purpose. The fruit must be pared perfectly, and the seeds, stones, and hearts, cut out.

In the North and South both, two sorts of marmalade are prepared, simple and compound. That made at the South, does not require as muchcooking as that at the North. It contains, all other things being equal, less water, tartar and extractive matter and more sugar.

" For the simple marmalade of the South, take 6 gallons of must ; one half must be put in a preserving pan over a quick fire, and the other half be gradually added every time the liquid boils up; this boiling liquor must not be lost sight of for a moment, and the scummust be removed as fast as it rises ; and it must be strained hot through a thick cloth. It must then be put back on the fire, and constantly stirred with a wooden spaddle until it is boiled to a jelly ; this is found by dropping a little on a dish, when, if it cools into a jelly, it has boiled sufficiently.

" As for the simple marmalade of the North, when the 6 gallons have been skimmed and are reduced by boiling to 4 gallons, the pan is taken from the fire and the liquid poured into stone pans, where it

is left for 48 hours in a cool place. At the end of that time the surface is covered with crystals of salt of tartar, which must be removed with great caution with a skimmer; the separation of this quantity diminishes the two marked acidity of the preserve, and increases its sweetness. This process is highly necessary in the North, and according to the season the tartar is in greater or less quantities; but in the South, the presence of tartar is rather desirable to relieve the insipid sweetness of the sweetmeat, which is so great, that aromatics have to be used to give it a flavor. When skimmed of the tartar, the must is strained through a thin cloth, decanted and put back on the fire, where it must be stirred without ceasing. The must has become marmalade when it sets in a jelly, on being stood to cool.

Compound marmalade of the South. When the must has been boiled to one half, and been sufficiently skimmed, it must be strained; and the peeled and quartered fruits must be thrown into the pan; pour over them the liquor, which by the first boiling up, melts into the necessary fluidity for acting on the fruit, and softening it into a pulp; stir constantly, until the boiled fruit is mashed and incorporated, and the whole syrup is one homogeneous mass. Towards the last, the fire should be gradually moderated. To know when it is done, take about the size of a hazel-nut and drop it on a china dish; if it does not sink flat, and if no moisture escapes from it forming an areola around it, the jelly is done. If the fruit has, on account of the vintage ripening late, been previously stewed —before adding it, the must should have nearly reached its final consistence.

For the compound marmalade of the North—

after the must has been thickened by boiling, and freed of its superabundant tartar, it is put back upon the fire with the fruits that are to be mixed with it, precisely regulating the whole in the way already mentioned for the compound marmalade of the South. But, as the fruit selected, is sometimes so acid that the preserve could not be used without the addition of some sweetening, a little grape syrup is added, while boiling ; the syrup of sweetmeats, or Southern marmalade. The housekeepers at the North, who have not at command these means, first clay the must, that is neutralize it with powdered chalk ; then boil it to a syrup, and afterwards add the fruit, and proceed with the reduction of the whole as before mentioned.

An excellent marmalade is made from clayed must and pears in the proportion of 100 or 120 pears to 4 gallons of sweet must, and 4 or 6 quinces ; it is sweet and mellow, with a slight tartness that heightens its fragrance and flavor. The Northern marmalades are, on the whole, preferable to those of the South, in which the sugar and tartar are not in such relishing proportions. The conserve must be covered in pots from the air, and stood in a dry place. When it candies, a little must may be added to it, or the pots be stood in boiling water for several hours and the jelly well stirred.

Grape Butter. In place of adding fruits of various kinds to the boiling must, some only add a certain portion of must that has been evaporated and concentrated to thickness ; the whole boiled to the consistence of jelly, is a very agreeable and healthy addition to the table in fall and winter.— This preserve is poured into pots, with cinnamon and cloves, and put in the bread-oven to bake, before it is considered sufficiently prepared for

keeping. Before serving it on the table, it is slightly warmed and is eaten with buttered toast.

Made Wines.—By made wine is understood a fermented table drink, obtained from a mixture of concentrated must, brandy, and some spices of aromatic seeds. The preparation of these wines, belongs to the housekeeper or her daughters.

Pick the ripest, finest, and most sweet smelling grapes of the Malvosie and the Muscat kinds, at the hottest time of day, to avoid the least humidity. Lay them on hurdles and transport them with great caution to the spot in which they are to be exposed to the sun. Here they must be left five or six days; turned three times a day, and sheltered at night. The sixth day they are to be crushed in the vat. Of the must thus obtained, only the upper part is taken out for this purpose, the lower not being considered so exquisite and rich. This *cream* of the must is put in a copper boiler over a clear charcoal fire, or at least a fire without smoke, where it must boil until reduced to one third, being in the meantime carefully skimmed It is then poured into new, or perfectly clean, wooden vessels, and when cold is transferred to casks and bunged tightly. The wine it makes, is of a pretty amber color, rich, delicate, and should be racked and bottled promptly.

In some southern districts, as the liquid boils up, they throw in some anniseed and coriander; cinnamon; six apricot stones, shells and all, six peach-pits the same, and after it has stood forty-eight hours, it is strained through a wet cloth. It is then put away in vessels, and stands the whole winter, when it is drawn off clear, strained through a jelly-bag and bottled.

EXPLANATION OF TERMS.

Used in cultivation of Grapes and making of Wine.

Buttan, the bud of a vine before the leaf puts out.

Bonnet, the scum or top of the Must, during fermentation.

Bouquet, the fragrance or odour of wine.

Body, the substantial vinous spirit.

Dry Wine, acid wine, or astringent wine.

Diœcious, a vine is diœcius when the stamens is on one vine, and the pistil on a separate vine.

Espalier, trees or vines interwoven together.

Generous Wine, a spirited wine.

Hybrid, a mule—a vegetable production by the mixture of different species. The seeds of hybrids will not propagate.

Laterals, an offset from the root of the cluster, back of the stem.

Light Wine, a wine of little spirit.

Must, the crushed grapes before they are pressed.

Marc, or *Murk*, the dry skins and seeds after pressing. Sometimes called pumace.

Polygamous, a vine is polygamous when it has the staminate and pistillate organs (sexual organs) on the same vines.

Palisades, strong stakes pressed or set in the ground, or an enclosure.

Pricked Wines, are those commencing to be acid, or sour.

Spur, a projection from the stock, cut down to one or two buds.

Stumming, is the burning in an empty cask strips of rag saturated with melted sulphur.

Tendrils, claspers which twine around a branch, and confine the vine.

Vintage, the whole crop from the vineyard.

Vintner, a manufacturer of wine.

Vigneron, a vine-dresser, one who prunes and cultivates the vines.

Viscous, glutinous, stickey, tenacious.